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The Pervasive Effects of High Taxation of Capital Goods in India

Findings and Conclusions from a Sample of Projects

Francois Ettori

India's heavy duties on capital goods blur the incentive signals from the tariff structure. In practice, that structure favors import substitution of intermediate products from heavy industry and discourages exports. The complex protection structure should be simplified, with priority to slashing the duties on capital goods.

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This paper -- a product of the Industry and Finance Operations Division, Asia Regional Office, Country Department IV (India) -- is part of a larger effort to undertake a comprehensive review of India's trade regime and policies and to make recommendations for liberalization of trade policies. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Francois Ettori, room D10-049 , extension 80324 (39 pages with graphs and tables).

Some 60 industrial projects (chiefly in the chemical and engineering subsectors) financed by the Development Finance Institutions in India in 1988 and 1989 were analyzed. The major finding is that levying the heaviest duties on imported capital goods has deeply distorted industrial incentives and harmed industrial competitiveness and exports.

With tariffs on capital goods averaging 80 percent (except for electronic industries equipment which pays about 40 percent), Indian projects are generally 40 to 50 percent more expensive than they would be under free trade, and up to 80 percent more expensive in capital-intensive projects.

The high investment costs require a compensatory effective protection averaging 30 percent to allow industrial projects to earn returns at least equal to those available under free trade. However, about half the projects (generally those producing final goods) receive effective protection significantly lower than the compensatory effective protection, and generate lower profits than those of foreign competitors.

Nominal protection varies widely between subsectors -- from 25 percent for final goods industries to 60 to 65 percent for industries producing intermediates and inputs for downstream subsectors -- and within each subsector.

Nominal protection rates (as reflected by domestic to world price ratios), averaging 40-50 percent, are substantially lower than average tariff collection rates (60-70 percent) and much lower than official tariffs (120-140 percent). The wide variations in protection reflect a complex system comprising many exemptions and ad hoc tariffs.

Tariff reform is urgently needed. Tariffs should primarily provide protection and incentives, with only a secondary function of generating public revenue. First, tariffs should be slashed, and imports liberalized, on capital goods, toward a uniform tariff of 25 percent and full exemption for projects exporting at least half of output. For intermediates and other inputs, most tariff exemptions should be eliminated, import regimes unified, and tariffs aligned on collection rates toward reduced levels averaging 40 percent.

Public revenue should be generated increasingly through trade-neutral instruments (profit taxes and indirect taxes such as MODVAT and consumption VAT).

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Introduction

1. The Industry and Finance Division of the India Department of the World Bank (AS4IF) undertook in 1989-1990 an in-depth review and analysis of the Trade Regime of India and of its effects and implications on the performance of India's manufacturing sector. Vast amounts of statistics, other analyses and literature were assembled to that purpose, with a view to recapitulate and synthesize the available knowledge on the subject and to draw a relatively comprehensive picture of the protection structure, growth, cost competitiveness, external trade and structural evolution in each of the major subsectors of Indian manufacturing. Prominent among the available sources of information and prior analysis were the Bank's 1987 CEM, Garry Pursell's Review of Effective Protection of Indian Industry (mimeo, unpublished), and ICICI's 1985 study of export-performance of ICICI-financed companies.

2. A significant obstacle, however, in carrying out the AS4IF's review was the scarcity of updated data on prices, costs and profitability in Indian industries relative to international markets and comparators. The most recent years for which the other available analyses and data were providing reasonable estimates of prices, protection and profitability in industry were covering the period 1980-1986. Moreover, in computing their estimates with the best possible accuracy, these other studies paid less attention to the analysis of the internal workings and dynamics of the protection structure, i.e. the degree to which protection feeds upon itself and calls for further protection when one group or category of products (e.g., intermediates, capital goods) is used or further processed by a downstream subsector. The purpose of this Working Paper is to contribute further to the existing studies by analyzing the internal dynamics of the protection structure on the basis of recent data valid for the late 1980s.

General Purpose and Approach

3. Up-to-date information and data of the type required for estimating the Competitiveness and the Effective Protection (in particular, relative domestic to international prices for inputs and outputs) of industry normally requires lengthy and extensive surveys of a representative sample of manufacturing enterprises. Due to time constraints principally, such survey could not be undertaken. As the best substitute, detailed data of the type required were extracted from a sample of some 60 appraisal reports prepared by ICICI and IDBI for projects which they financed in 1988 and 1989. These projects were made in 25 manufacturing subsectors (as defined in the 115 - subsector classification of the Indian economy, which comprises a total of 66 manufacturing subsectors), focussing principally on the metal and engineering industries (including electronics) and to a lesser extent on the chemical and related industries (synthetic fibers and textiles, pharmaceuticals).

4. The project data were assembled with a view to providing quantitative indications, and whenever possible answers, to the following questions:

(a) What are the respective profitabilities of the domestic and international markets for Indian industries?;

(b) How much of Indian industry's lack of international competitiveness stems for the extra costs paid for inputs (in the form of duties on imported inputs or high prices for domestic supplies)?;

(c) What is the impact of India's investment costs, grossed-up by duties and taxes on imported equipment and by higher prices of domestic machinery, on the Value Added and the Effective Protection of Indian industry?;

(d) What is the minimum level of nominal protection required by Indian industry to compensate for the extra costs paid for its inputs (item b) and for its investments (item c)?; and

(e) To which extent are the actual nominal and effective protections received by Indian industry in concordance with the levels of protection stemming from items (c) and (d) above?

5. The results of the analysis presented below should be interpreted with some qualifications. Firstly, the parameters and data used in DFI project appraisal reports tend inherently to err to the favorable side with respect to comparative prices (domestic versus CIF) for the projects' outputs. Secondly, the projections implicitly assume that the projects will be operated efficiently to minimize production costs (inputs, labor, capacity operating ratio, ...). In practice, actual production costs are often higher than projected during appraisal, and domestic ex-factory prices are then increased as much as permitted by domestic competition and the degree of protection provided by the Quantitative Restrictions and the protection tariffs levied on competing imports in India. For these reasons, the data are most likely to underestimate the actual domestic profitability, the price uncompetitiveness, and the effective and nominal protections presently experienced by Indian industries. 1/ Nevertheless, they provide an indication of the incentives and disincentives stemming from the protection structure as they are perceived ex-ante by the project promoters and financiers. In this sense, they should provide useful indications and benchmarks for a reasonable assessment of the issues raised in para. 3 above.

1/ The same favorable bias is a first factor for underestimating the effective protection. Moreover, available data of appraisal reports could not permit to separate out the excise (or CVD) taxes from the ex-factory or landed prices of inputs to be purchased for the projects' operations. Estimating and separating out such excise or CVD taxes on the basis of the official tax schedules would have been misleading, due to the pervasive exemptions and ad-hoc rates applied in India, and was not done. To this extent, the comparative prices of inputs used in the Effective Protection computations are slightly overestimated, and the resulting Effective Protection rates are further underestimated.

Comparative Profitabilities of the Domestic and International Markets

6. About one-fourth of the sample projects were projected to export a significant share of their output (including one 100% Export Oriented Unit), and 6 other projects (one-tenth of the sample) would export a marginal share (5% to 10%). Only half of the significant exporters show a favorable (i.e., below or close to 1) ex-factory to export (FOB) price ratio (the Nominal Protection Coefficient, or NPC) 2/ for their output. Other significant exporters (mostly in chemical and associated industries) have unfavorable domestic/FOB price ratios, ranging between 1.4 and 2.3 (Annex I). The marginal exporters have output NPCs ranging between 1.14 and 1.84. Among the non-exporters, a group of 8 potential exporters (see para. 9) have favorable output NPCs below or marginally above 1 (0.80 to 1.14), and all other non-exporters (half or the sample) have price ratios ranging between 1.20 and 1.94.

7. Production costs per unit of output were determined for each project, on a full cost basis as well as on a marginal basis (i.e., before depreciation, interest and administrative overheads). Profitability of the domestic market (as percent of output prices) was determined over the full production cost (i.e, domestic price minus full unit production cost). The full cost profitability and the marginal profitability (over the marginal production cost) were computed for exporters and non-exporters, as % of the international price (FOB in cases of export, CIF otherwise). The results, detailed in Annex I, are summarized below:

Table 1: Comparative Profitability of Domestic and International Markets

Export Category (%)	Sample Share (%)	Export to Output (%)	Output NPC	Full Cost Profitability (%) Domestic Price	Full Cost Profitability (%) International Price	Marginal Profitability of Intnl. Price
None	53	0	1.55	11.2	-41.2	-12.2
Potential	14	0	1.00	14.7	12.2	38.5
Marginal	10	8.0	1.39	9.7	-24.9	1.3
Significant	23	45.9	1.42	16.4	-13.0	15.5
Overall	100	11.7	1.43	12.9	-24.6	3.6

Note: Unless otherwise specified, all indicators in this and following tables are simple (unweighted) averages.
Source: Annex I

8. The projected price competitiveness, as measured by the Output NPC, does not appear to constitute the explanatory factor for the decision to export. The output price ratio is similarly high (1.4 to 1.5) for the categories of non-exporters and exporters. The only difference, which may carry the full explanation, between these two categories is the marginal cost profitability of international prices: -12% for non-exporters, +15% for significant exporters. Moreover, CCS income increases the marginal cost profitability of significant

2/ The economic mechanisms by which these price ratios (NPCs) are generated are not analyzed in this note. Suffice to say here that NPCs are the result of the various effects of import Quantitative Restrictions and tariffs relative to the degree of domestic competition and supply/demand balance permitted by the regulatory policies.

exporters by only 2.6 percentage points on average. 3/ This confirms the analysis and findings of the Bank' Export Strategy Report (6663-IN, March 1987) which established that Indian industry generally exports a marginal share of output when the export international price permits a reasonable profitability at marginal cost. The category of marginal exporters earns a small marginal cost profitability of 1.3% on FOB prices, and does not expect to receive additional CCS income. These levels of export profitability as anticipated in 1988-1989 compare favorably with those prevailing in 1978-1980 as recorded by ICICI for a sample of industries. 4/

9. The second category of Table 1, denominated potential exporters, constitutes some sort of anomaly. They are characterized by having not only the most favorable price competitiveness (average NPC of 1), but also a full cost profitability over international prices which is similar to their profitability in the domestic market (12% versus 14.7%). Nevertheless, the appraisal reports for these projects do not indicate plans or even intentions to export. These projects are generally in engineering industries, with some in chemical industries based on local primary resources. A major characteristic of these projects is their relatively high Value Added content (their VA/Output ratio in international prices average 54%, as compared to 32% for the other project categories), which gives them more room for cutting down on the cost components of Value Added. As a matter of fact, all projects of this category have negative Effective Rates of Protection (EPRS), averaging -29% as opposed to an average +50% for the other project categories (Annex I), which suggest high operating efficiency (according to appraisal report projections). The reasons for not exporting nor considering exports are not mentioned in the appraisal reports for these projects, and might be case-specific. They may relate to quality standards and issues, particularly for final engineering goods. This apparent anomaly would deserve during a subsequent mission some investigation with the DFIs which might lead to worthwhile findings.

Impact of Input Costs on Competitiveness and Profitability

10. A major source of uncompetitiveness in Indian industries has been the higher prices paid for operating inputs relatively to international prices. The main reasons for these higher prices are: (i) the tariff duties paid on imported inputs; (ii) the uncompetitive prices of domestic supplies; and (iii) the non-deductible excise taxes. On average, inputs used by the projects have prices

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3/ These low levels of CCS, as explicitly recorded in the DFIs' appraisal reports, are much lower than the official CCS rates. It is quite possible that the exporting projects will actually receive CCS incomes higher than those taken into account by the DFIs. Nevertheless, the high NPCs and negative profitability of some projects in the category of substantial exporters cast doubt on their real intentions and future achievements regarding exports. In particular, it is difficult to see how six projects with highly negative profitabilities of exports on full cost could export 50% to 75% of their output. The reasons why these projects intend to export such major shares might be case-specific and would deserve further investigation.

4/ Export Performance of ICICI - Financed Companies (1978/79 to 1980/81), Bombay, 1985.

49% above international prices. The domestic to international price ratio (NPC) for inputs decreases from 1.58 in the first category (non-exporters) to 1.38 for substantial exporters, as shown below:

Table 2: Impact of Input Costs and Taxes on Profitability

Export Category	Average Input NPC	Input Taxes as % of Output Intnl. Price	Adjusted Profitability /a of International Price over:	
			Full Cost	Marginal Cost
None	1.58	39.0	-0.7	28.2
Potential	1.43	14.6	30.5	56.8
Marginal	1.43	27.3	2.2	28.7
Significant	1.38	21.1	8.1	36.7
Overall	1.49	30.3	6.0	34.2

/a Adjusted by removing taxes and price surcharges from input costs.
Source: Annex II.

The additional costs stemming from the higher input prices represent on average 30% of the output's international price. This cost handicap is significantly higher for the non-exporters (39%), and markedly lower for the potential exporters (only 14.6%) due to their high Value Added content and their use of relatively cheap domestic resource-based inputs (e.g., Maize, Aluminum).

11. A simulation of the "tax-free" production costs (excluding the surcharges paid for inputs, i.e., the tariffs on imported inputs, the price differentials on local ones, and the non-deductible excise taxes) indicates that the competitiveness and profitability of the projects relative to international prices would be greatly enhanced by eliminating these surcharges. Practically all projects which had a negative marginal profitability on international prices would generate a positive tax-free marginal profitability under such conditions. Furthermore, the proportion of projects which would ear from international prices a positive profit on their full production cost wo. i triple (from 20% to 63%). In the category of non-exporters, this proportion would increase dramatically from 0 to 50%, i.e., half the projects which have no prospect nor potential for export under the present circumstances could become substantial exporters with a reasonable positive profit margin if they could procure their inputs at international prices. It confirms the major finding and recommendation of the Export Strategy Report, regarding the critical importance of access to inputs at international prices for any successful export policy.

Impact of Investment Costs on Value Added and Effective Protection

12. One uncommon feature of India's protection structure is the high level of customs tariffs and taxes levied on imported capital goods. Correlatively, the domestic capital goods industry supplies the rest of the industrial sector at prices generally higher than international prices for comparable capital goods. Moreover, the price ratios for capital goods increase with the technology level of capital goods and equipment (e.g., CNC machine-tools have NPCs exceeding 2 as compared to 1.2-1.4 for standard machine-tools).

13. The high cost paid by Indian industrial projects for their capital goods (either local or imported) implies that the projects' Value Added in domestic prices should normally include a larger amount of capital renumeration (interest, depreciation, and return on fixed assets). This by itself contributes, ceteris

paribus, to domestic Value Added exceeding Value Added at international prices, and to a positive Effective Rate of Protection (EPR). In fact, the difference between a project's financial return on capital (or MRR) in domestic prices and its economic return (or ERR) in international prices under a free trade regime is shown (see Annex III) to be approximately expressed as follows:

$$MRR - ERR = C. \left[\frac{1}{y} (1 + \frac{EPR}{1-s}) - 1\right]$$

where:

- MRR is the (pre-tax) financial internal rate of return;
- ERR is the economic internal rate of return;
- y is the ratio of the Investment Cost in domestic prices to the Investment Cost in economic (international) prices (this ratio is greater than 1 in India) 5/
- s is the share of Labor in the Value Added in economic (international) prices;
- EPR is the project's Effective Rate of Protection; and
- C is a parameter specific to the project, i.e., depending exclusively on its parameters in world prices.

It follows (cf. Annex III) that in order to ensure to an investment project a financial pre-tax return at least equal to the economic return achievable under a free trade regime, the project should receive a Compensatory Effective Protection Rate (CEPR) at least equal to:

$$CEPR = (1-s) (y-1)$$ 6/

5/ The factor y represents in fact the ratio of both Investment costs required per physical unit of output (ton or piece). It is thus the product of two factors: $y = x.z$. Factor z, the ratio of Investment costs expressed in domestic and international prices, captures the effects of capital goods pricing policies. Factor x captures the effect of x-inefficiencies in selecting the project's production capacity. In subsectors characterized by substantial economies of scale such as chemical industries, the investment cost per ton of output, and thus x, increases by about 25% each time the capacity is reduced by half. Many projects in India have capacities far below international standards for MES, and have x factors significantly above 1. However, in order to focus the analysis on the effects of pricing policies for capital goods, x is implicitly taken to equal 1.

6/ This formula for CEPR can be interpreted by using one unit of VA in international prices as the numeraire. With this numeraire, the additional VA in domestic prices (CEPR) compensates for the renumeration (1-s) of the additional investment cost (y-1). Moreover, the formula for CEPR becomes (1-s) (y-1)+t, where t is the share of income tax in the VA (in international prices), if the after-tax financial return is to be equalized to the economic return.

Moreover, the quantities MRR-ERR and EPR-CEPR should normally have the same sign, i.e., be simultaneously positive (or negative).

14. Factor y in India is significantly above 1 for several reasons. Firstly, collected tariff duties on imported capital goods for projects are high. They average some 70% (Table 3). Only electronics industry machinery enjoys a lower tariff duty of 30%. Other industries pay an average tariff duty of 80% on their imported equipment. Secondly, locally procured capital goods, generally representing the major share of equipment, carry purchase prices which average 40% above international prices. 7/ Thirdly, other goods and materials used in investment projects, cement in particular, are charged substantial excise and other taxes which increase further the financial costs of investment above international equivalents.

15. Two estimates of factor y were computed for the sample projects. The first estimate y1 was computed as the ratio of the financial investment cost to the same adjusted for tariff duties on imported equipment and for the high prices of local equipment (the first two factors described in para. 14). This factor y1 captures only the impact of the high prices of capital goods. The second estimate y2 is the ratio between the financial investment cost and the "economic" investment cost (used for ERR computation), and captures not only the effect of capital goods prices but also the price distortions of other goods and factors (e.g., cement, interest during construction, ...). In a sense, the factor y2 represents an upper limit of the cumulative effects of all forms of investment taxation in India.

16. The sample data confirm that investment costs in India are significantly higher than international costs, and that the taxation of capital goods is the major factor accounting for that, as illustrated below:

Table 3: Effect of Investment Costs on Effective Protection /a

Export Category	Tariff (%) on Imported Machinery	Investment Cost Factor y1	Investment Cost Factor y2	Compensatory EPR (CEPR) /b (in %)	Actual EPR (in %)	# Projects (%) in Excess/Shortfall
None	74.2	1.41	1.55	30-41	60	65/35
Potential	76.1	1.52	1.60	45-52	-27	0/100
Marginal	56.8	1.36	1.52	23-33	54	33/67
Significant	62.0	1.33	1.50	27-40	-16	23/77
Overall	70.5	1.40	1.55	30-42	30	42/58
of which:						
Electronics	36.9	1.27	1.40	15-22	7	
Others (A'.)	78.7	1.43	1.58	34-46	34	

/a Actual EPRs in this table are weighted by VAi
/b The lower (resp. higher) value of the indicated range corresponds to y1 (resp. y2).
Source: Annex IV

17. These results call for a number of observations and remarks. First, exporting projects (whether marginal or significant exporters) pay lower duties on their imported equipment than non-exporters (about 60% versus 75% on

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7/ Derived from the conversion factors used by the DFIs for local capital goods in their ERR computations. This 1.4 ratio is reasonably close to our own estimates.

average). 8/ This tariff differentiation has an impact on the y factor, which is slightly but significantly lower for exporters (y1 averages 1.34) than for non-exporters (average 1.45). The y1 factor indicates that the taxation of imported and local capital goods in India makes industrial investments 40% more expensive than they would be if they had access to capital goods at international prices (this taxation impact is only 27% for projects in electronics). Other distortions and taxations captured by factor y2 add about 15 percentage points of extra-costs (difference between y1 and y2).

18. Second, the surcharge on investment costs due to taxation of capital goods would require a compensatory Effective Rate of Protection of 30% on average to allow Indian investment projects to earn returns equal to those they could earn under a free-trade regime. The amount of Compensatory Effective Protection stemming from capital goods taxation varies between exporters (average of 25%) and non-exporters (average of 35%), and between projects in electronics (15%) and other sectors (34%). Other sources of distortion and taxation on investment costs would require on average an additional 12 percentage points of compensatory effective protection (only 7 percentage points in Electronics).

19. Thirdly, a large majority of non-exporters (65%) have actual EPR in excess of the CEPR (see last column of Table above), as opposed to a minority of exporters (marginal or significant exporters). Potential exporters all have their EPR much below their CEPR. Import substitution is clearly favored by the structure of Effective Protection.

20. The substantial differences between Electronics and other subsectors with respect to duties on imported equipment and the resulting CEPRs suggest that Effective Protection varies markedly from one subsector to the other. The data presented in the previous Table, after reclassification by subsector (as opposed to export category), indicate indeed significant variations between subsectors in CEPRs and in the discrepancies between CEPRs and actual EPRs (see Table 4 below). Average CEPRs (adequately weighted by Value Added in world prices) range between about 15% for Electronics to 30-45% in most other subsectors and up to 45-55% in Synthetic Yarns. Furthermore, the comparison between CEPRs and actual EPRs indicates wide variations in discrepancies and unequal incentives from one subsector to the other, though the CEPR/EPR discrepancy on average over all subsectors is small (and within an acceptable error margin of ± 10%). 9/ The only subsector where the actual EPR falls within the CEPR range is Heavy Chemicals. Excess of actual EPR over CEPR are negligible (10-13%) in Basic Steel

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8/ This is not due to a concentration electronics projects in the exporters: electronics projects represent 21% of exporters, versus 15% in non-exporters.

9/ It should be emphasized here again that project EPRs are most likely underestimated by significant amounts compared to the real EPRs which the projects will receive when operating (cf. para. 5). The overall average CEPR/EPR discrepancy may thus be larger than indicated by these results. To illustrate this point, footnotes of Annex I indicate two projects for which output prices were projected to be 10% below market prices (probably for marketing reasons). Once firmly established, these projects will most probably align their prices to the market, and their EPR will increase by 40%.

Products, significant and relatively modest in Synthetic Yarns (17-26%), and quite large (37-47%) in Miscellaneous industries (paper, tyres, plastic-made products). Shortfalls of EPR relative to CEPRs are also negligible for Electronics (7-9%), significant in Food industries (22-35%), quite large in light chemicals (34-48%), and very large in Engineering industries (45-60%). These results are recapitulated below:

Table 4: Compensatory and Actual Effective Protection by Subsector /a

Subsector	Sample Share (%)	VAi Share (%)	Factor x /b	CEPR (%) /b	Actual EPR (%)	# Projects (%) in Excess/Shortfall
Heavy Chemicals	17	20	1.40-1.53	28-45	37	60/40
Light Chemicals	5	3	1.33-1.57	28-42	-6	0/100
Synthetic Yarns	7	15	1.56-1.66	44-53	70	50/50
Basic Steel Products	12	7	1.49-1.60	37-50	60	57/43
Electronics	17	11	1.27-1.40	14-16	7	60/40
Other Engineering	26	25	1.43-1.61	34-49	-11	0/100
Food Industries	[illegible]	6	1.41-1.50	30-43	8	50/50
Miscellaneous	9	13	1.43-1.52	30-40	77	80/20
Overall	100	100	1.40-1.55	31-39	30	42/58

/a - CEPRs and Actual EPRs in this table are averages weighted by VAi.
/b - The lower (resp. higher) value of the indicated range corresponds to y1 (resp. y2).
Source: Annex V

21. The ad-hocism and inadequacy of the structure of Effective Protection, evidenced by the large inter-sectoral variations in the discrepancy between actual and compensatory EPRs, is further illustrated by the intra-sectoral discrepancies within each subsector. Only in light chemicals and engineering industries subsectors, all the sample projects are subject to the same discrepancy (shortfall of EPR), as indicated by the last column of Table 4. In practically each other subsector, the projects are distributed in approximately equal shares between those benefitting from excess EPR and those subject to EPR shortfall. The level of Effective Protection, therefore, is markedly uneven not only between subsectors but also within each subsector, and provides thus very heterogeneous incentives. These various measures and indications clearly reflect that fine-tuning the structure of protection via a multiplicity of ad-hoc protection rates, as India has attempted it, is counterproductive and practically impossible.

Impact of Inputs and Investment Costs on Competitiveness and Nominal Protection

22. India's protection regime and tariffs impact on the production costs and competitiveness of industry in various ways. There are two mechanisms with a direct impact. Firstly, the capital goods taxations affects Value Added, as analyzed in the previous section. Secondly, the higher prices of industrial intermediates and inputs are generally passed on into the final price of the output. The respective impact of these two factors on the production cost and the price of the output depends essentially on the Value Added content of the projects. It is shown (Annex III) that, again in order to maintain a return on financial investment similar to the return available under a free-trade regime, the project output requires a Compensatory Nominal Protection Rate (CNPR) at least equal to:

$$CNPR = a.CEPR + (1-a).NPRi$$

where.
- a is the Value Added to Output ratio (in international prices);
- CEPR is the Compensatory Effective Protection Rate defined earlier; and
- NPRi is the average Nominal Protection Rate of inputs.

The first term a.CEPR measures the impact of investment costs on the output production cost, and the second term (1-a).NPRi measures the impact of input costs.

23. This analysis applied to the sample projects indicates that most of the additional production costs, and thus most of the Compensatory Nominal Protection (CNPR) required for output, stems from the second term capturing the impact of input costs, as indicated below.

Table 5: Impact of Investment and Input Costs on Nominal Protection (in % of Output Value at International Prices)

Export Category	Input Cost Impact	VA/CEPR /a Impact	CNPR /a	Actual NPR	# Projects (%) in Excess/Shortfall
None	39.5	9.6-13.3	49.1-52.8	55.6	65/35
Potential	14.9	27.5-28.5	42.4-43.4	0	0/100
Marginal	32.7	6.2-10.5	38.9-43.2	43.3	33/67
Significant	22.9	10.8-17.3	33.7-40.2	21.9	23/77
Overall	31.7	11.7-16.1	43.4-47.8	39.1	42/58

/a - The lower (resp. higher) value of the indicated range corresponds to y1 (resp. y2).
Source: Annex VI.

24. A broad conclusion emerges clearly from the above table. Input extra costs increase production costs on average by about 32% of the output international price. This impact cost impact is only 15% in the category of Potential exporters, due to their access to relatively cheap resource-based inputs (cf. para. 10) and to their high VA content (cf. para. 9). Surcharges on investment costs increase production costs on average by 12 to 16%. This investment cost impact is significantly lower (6-10%) for Marginal exporters, due to their low VA content (25%, as against 37% for other categories) and the lower tariffs paid for their imported capital goods (57%, compared to 72% for other categories - cf. Table 3). The investment cost impact is markedly higher for Potential exporters, for symmetrical reasons (high VA content, and highest tariffs of 76% on imported capital goods). The overall impact is that all these industrial projects would normally require on average a Compensatory Nominal Protection (CNPR) of 43 to 48%, say about 45%, two-thirds of which to offset the impact of high input costs. It should be noted that, due to the partial tariff exemptions enjoyed by Significant exporters for their imported inputs and equipment (cf. Tables 2 and 3) as per the trade regime for exporters, such projects would require a slightly lower CNPR (ranging around 37%) for their output. It further confirms the findings and recommendations of the Export Strategy Report (6663-IN) regarding the critical importance of providing access to production factors at competitive prices for a successful export policy.

25. As indicated by the last column of Table 5, two-thirds of non-exporters received actual nominal protection (NPR) in excess of the CNPR. This contrasts sharply with the exporters (marginal and significant), where a majority (two-thirds to three-fourths) receive nominal protection below CNPR, and particularly with Potential exporters which all receive actual NPR well below the CNPR which they would require. This pattern highlights the marked bias of the protection structure in favor import-substitution and against exports, as already noted in para. 19.

26. Overall, the discrepancy between actual and compensatory Nominal Protection is small, and within an acceptable error margin of ± 10 percentage points. 10/ However, as noted earlier in the case of effective protection, there are wide variations in the CNPR/NPR discrepancies from one subsector to the other. To this effect, the following Table indicates the subsectoral averages of compensatory and actual nominal protection rates (weighted by Output value in world prices):

Table 6: Compensatory and Actual Nominal Protection by Subsector /a
(in % of Output Value at International prices)

Subsector	Output (w) Share (%)	Input Cost Impact	VA/CEPR /b Impact	CNPR /b	Actual NPR	# Projects (%) in Excess/Shortfall
Heavy Chemicals	17	46.4	10.0-16.0	56.4-62.4	58.8	60/40
Light Chemicals	2	19.2	14.4-21.8	33.6-41.0	15.8	0/100
Synthetic Yarns	12	46.0	17.0-20.5	63.0-66.5	64.9	50/50
Basic Steel Products	10	49.7	10.4	60.1	61.8	57/43
Electronics	15	32.4	3.3	29.1-35.7	34.2	60/40
Other Engineering	19	24.1	12.0-16.6	36.1-40.7	19.2	0/100
Food Industries	6	23.6	0-13.1	23.5-36.7	25.8	50/50
Miscellaneous	19	31.1	6.1-6.7	37.2-37.8	46.2	80/20
Overall	100	35.7	4.8-8.5	40.5-44.2	43.7	42/58

/a - The two components of CNPRs and Actual NPRs in this table are averages weighted by Output in world prices.
/b - The lower (resp. higher) value of the range corresponds to y1 (resp. y2).
Source: Annex VII

27. The concordance between actual and compensatory NPRs is higher than for effective protection. The actual NPR falls within the CNPR range for Heavy Chemicals, Synthetic Yarns, Basic steel products, Electronics and Food industries. Excess of NPR over CNPR is negligible (about 9%) in the Miscellaneous industries (dominated in the sample by Tyres). On the other hand, the shortfalls of NPR relative to CNPR are significant in engineering industries (17-22%) and in Light Chemicals (18-25%). Finally, the intra-sectoral discrepancies observed within each subsector for effective protection (cf. para. 21) are equally applicable to the nominal protection, as summarized in the last column of the table above. Except for light chemicals and engineering industries where all projects are subject to an NPR shortfall, the projects in each other subsector are distributed in approximately equal shares between excess and shortfall of nominal protection relative to the CNPR.

10/ Again, actual NPRs may appear reasonable in levels. However, they are most likely to be underestimates of the real NPRs which the projects will enjoy when operating.

28. On a product-wise basis, it is important to remark that subsectors producing intermediates and inputs for other subsectors (heavy chemicals, synthetic yarns, basic steel products) show quite higher NPRs and CNPRs (averaging about 62%) than the other subsectors producing final goods which have NPRs and CNPRs averaging about 32%. The only subsector where each project's NPR and CNPR are concordant is the Subsector 45 of Synthetic Textiles. In other Chemical industries subsectors (60, 61,63,65,67,68), actual protection tends to be higher than required by 10 to 20 percentage points (e.g., synthetic rubbers, ABS, Phenols), except for inorganic chemicals (e.g., nitric acid, with a shortfall of about 50 percentage points), pesticides and the export-oriented projects. 11/ In metal-based and engineering industries, the picture is mixed. A number of projects have adequate nominal protection in the domestic market (automotive electrical components, steel sheets, consumer durables, EPABXs and jelly-filled cables), an equivalent number have actual protection markedly below their CNPRs (e.g., bearings, aluminum products, machine-tools, hand tools, XLPE cables, steel pipes, carburetors, and auto bodies for export), and a few have excessive protection (e.g., CR coils, forgings). In electronic industries, most projects have adequate protection, some have excessive protection (e.g., PCBs, tuners, TV components), and professional computers/software have an NPR below NCPR by about 20 percentage points. Regarding product-wise effective protection, EPRs are close to CEPRs in Synthetic textiles (subsector 45) and a number of electronics goods, higher in synthetic rubbers, phenols, forgings, tyres, plastic made products, PCBs and TV components, and markedly lower in most export-oriented projects, pesticides, consumer durables, machine-tools, hand tools, XLPE cables, bearings, professional computers/software, and carburetors.

29. It should be noted that the average actual and compensatory NPRs of about 45% are substantially lower than the average tariff collection rates of 60-70% for 1987/88, which in turn are much lower than the average official customs tariffs of 130-140%. This strongly suggests that the customs tariffs and tariff collection rates are fixed by the Government at levels often exceeding what would be required by protection purposes exclusively, and contain a substantial amount of "water" for the purpose of generating public revenue. The benefits eventually derived from such public revenue are more than offset by the adverse effects of this non-protection objective on the structure and levels of manufacturing production costs, and have largely contributed to building-up the "high-cost economy" which India and its consumers have to live with.

11/ The wide variations and upwards bias of the NPR/CNPR discrepancy in Chemical industries provide a good illustration of the cumulative effects of protection variability and distortions. The formula of para 22 defining the CNPR indicates that, if nominal protection was homogeneous and NPRi similar to CEPR, the compensatory nominal protection would not increase when a product is consumed as input for further processing in a downstream industry. However, many chemical intermediates have nominal protection significantly higher than required, and thus jack up the CNPR of the downstream products. Synthetic textiles, which have a moderate CEPR component in the 10-20% range (cf. Annex VII), ultimately require CNPRs of 60-70% due to the cumulative build-up of protection caused by the large variations in the CNPRs of the chemical intermediates required successively for their production.

30. Remark - The substantial discrepancies between actual and compensatory protections (both nominal and effective) are reflected by the differences between the financial and economic rates of return of the projects. Some three-fourths of projects have financial rates of return lower than ERRs. The sign identity of MRR-ERR and EPR-CEPR according to the CEPR model (cf. para. 13) is verified in 84% of the cases, which confirms the relevance of the CEPR model to the analysis (the sign equivalence is statistically significant). The actual relationships between MRR-ERR and EPR-CEPR, and between MRR-ERR and NPR-CNPR, are displayed on Graphs 1 and 2 respectively, where most observations are in the lower left quadrant These graphs suggest in both cases a linear correlation.

31. The projects' financial rates of return are generally lower (often much lower) than their EPRs, by 15% on average. The MRR-ERR differences by subsector and export category are structured according to the pattern below:

Table 7: Difference Between Financial and Economic Rates of Return (MRR-ERR, simple averages in %)

Export Category	None	Marginal	Signifcant	Potential	All
Subsector					
Heavy Chemicals	+6.7	N.A.	-8.3	-25.0	-1.0
Basic Steel Products	-11.7	+16.0	N.A.	N.A.	-7.7
Synthetic Yarns	-2.3	N.A.	-30.0	N.A.	-9.3
Light Chemicals	N.A.	-5.0	-34.5	N.A.	-24.7
Electronics	-1.0	-15.5	-46.5	N.A.	-14.3
Food Industries	-20.0	N.A.	-17.0	-26.0	-22.3
Other Engineering	-11.5	-49.0	-32.0	-41.4	-27.8
All	-4.9	-13.8	-27.1	-35.5	-15.3

This pattern highlights the bias against exports and against final products, as the MRR-ERR differences are increasingly negative when moving to the right (increasing export potential) or downwards (from intermediates to final products). Some import-substitution heavy industries producing intermediates (e.g., heavy chemicals) may earn extra profits and rents. However, the export-oriented industries producing final goods (e.g., food industries, general engineering) which have MRRs markedly below ERRs will generate lower profits and cash than their foreign competitors (often operating under a free-trade or similar regime yielding a return close to the ERR) and will be heavily handicapped over the long term in their capability to modernize, innovate and keep abreast in the global competition.

Towards Lower Protection and Tariffs

32. The simulation of "tax-free" production costs (cf. para. 11) has shown that many more projects could export with a positive profit margin on international prices under favorable conditions for input and capital goods prices. The Indian economic authorities would strongly object to a tax-free access to intermediates and inputs (IIs), primarily on the grounds that the IIs domestic industry (generally capital-intensive) still needs protection to compensate for its sunk capital costs. Indeed, lower protection and prices for inputs and intermediates would enhance the profitability and exportability of final goods industries, but at the same time would endanger the viability of the industries producing these

inputs and intermediates. One question then is whether there is a "balancing" lower protection level for intermediates/inputs which would maintain the viability and profitability of IIs industries operating with the same protection and price ratio for their own inputs.

33. A second simulation on the sample's projects indicates that such a "balancing" level of protection (NPR) for IIs would be about 40-45%. Under this second simulation, the tariffs on imported capital goods were reduced to 25% (as per the recommendations of other studies 12/), all projects producing IIs (heavy chemicals, synthetic yarns, basic steel products) were grouped into one category and assumed to operate with average Input NPCs equivalent to the weighted average of their Output NPC, and their Output prices were computed such as to keep unchanged their profitability rates. 13/ This iterative simulation produced for Intermediates and inputs a "balancing" average NPR of 40-45% (45% for the first profitability assumption, 40% for the second one - cf. footnote 13).

34. The effects of the resulting tariffs (25% for capital goods, 40% for all IIs) on the international competitiveness and profitability of the projects are summarized as follows:

12/ Bank working papers, prepared for the Report 7895-IN: India - Capital Goods Sector Update, August 2, 1989, recommended that all QRs on capital goods imports be removed, tariffs actually levied on capital goods be cut initially to 50% and reduced progressively over 3-5 years down to 25%, a level compatible with the viability of the sick/fragile domestic enterprises producing capital goods provided that they undertake some restructuring and labor retrenchment.

13/ This favorable assumption was expressed in two forms, by keeping Constant:
- first, the gross profit to output value rate (which implies higher output prices and NPCs);
- second, the gross profit to assets return.

Table 8: Effects of Proposed Tariff Changes on Competitiveness and Profitability, by Product Group /a

Product Group	Simulted Output NPC: New	Simulted Output NPC: Reduction (%)	Profitability (%) of: Domestic Price	Profitability (%) of: International Price: Full Cost (%)	Profitability (%) of: International Price: Marg Cost (%)	CNPR (%)	CEPR (%)
By Export Category							
None	1.25	-26	10	-25	0	33	15
Potential	0.91	-9	11	18	40	28	17
Marginal	1.40	-4	9	-23	2	34	9
Significant	1.33	-11	16	-10	16	24	7
By Subsector							
Heavy Chemicals	1.51	-31	15	-25	7	30	12
Synthetic Yarns	1.22	-44	13	-14	14	32	20
Basic Steel Goods	1.38	-25	8	-26	-3	34	12
Average Intermedtes	1.40	-33	13	-23	7	32	15
Light Chemicals	1.13	-9	19	1	23	23	7
Electronics	1.22	-10	11	-18	3	29	2
Food Industries	1.06	-4	21	-20	13	29	5
Other Engineering	1.07	-12	8	1	22	31	18
Average Final Goods	1.20	-8	11	-12	11	28	11
Overall Average	1.27	-15	12	-15	10	30	13

/a In this table, NPRs are weighted by Output in world prices, and CEPRs by VA in world prices.
Source: Annexex VIII and IX.

Under the proposed tariffs for inputs and capital goods, the competitiveness and profitability of the projects relative to international prices would be significantly enhanced. The output prices yielding unchanged profit margins would decrease on average by 15% (-33% in IIs industries), and the average price competitiveness (measured by output NPCs) would increase by a similar amount (44 percentage points in synthetic yarns). Price competitiveness would greatly increase in final goods industries where prices would be only 20% above current international prices on average (7% in general engineering industries). Though only one-fourth of all projects would earn a positive profit from international prices on their full production cost (as compared to one-fifth originally), the proportion of projects which would have a positive profitability on their marginal cost would reach 60%, implying that some 7% of the projects would switch from a negative to a positive marginal profitability and thus would have an incentive to begin exporting a marginal share of their production. Moreover, output NPRs would come closer to CNPRs, and the incentives provided by the actual and compensatory effective protection would not only be more homogeneous between export-orientation categories and between subsectors but also induce higher efficiency (the average CEPR would drop from about 35% to 13%). Finally, the enhanced profitability of international prices for Indian industries would reduce, or even abolish, the need for CCS and other cash incentives for exports made by industries with a competitive advantage.

Conclusions and Suggestions (Summary)

35. The selected sample of some 60 DFI industrial projects financed in 1988 and 1989 is not representative of India's diversified industrial sector. However, due to the sample's focus on engineering industries and on chemical and related industries, it is reasonably representative of these two subsectors which have received a major part of the investments and incentives for development in India

over the last decade. Moreover, because it is based on project appraisal reports, the analysis provides a credible picture of the incentives offered by the protection structure as they are perceived ex-ante by the Indian industry.

36. A number of conclusions regarding nominal protection emerge clearly from the analysis. First, the actual nominal protection rate (NPR), as measured throughout the analysis by the relative domestic to international prices, averages 40-45%, which prima facie would appear relatively moderate.

Second, the actual nominal protection varies widely between subsectors, from 15-25% for industries producing final goods (light chemicals, engineering and food industries) to 60-65% for industries producing essentially intermediates and inputs for downstream industries (heavy chemicals, basic steel products, synthetic yarns). The variability of nominal protection is also high within each subsector, from product to product. These inter- and intra-subsectoral variabilities reflect the multiplicity of ad-hoc protection rates administered by India's economic authorities.

Thirdly, this multiplicity of administered protection rates stems from the attempts to fine-tune the structure of nominal protection to the levels required to compensate for the prices of inputs and capital production factors. The Compensatory Nominal Protection Rate (CNPR) is on average quite close and comparable to the actual nominal protection of 40-45%. However, there are substantial variations in the NPRs and the discrepancies between NPRs and CNPRs from one subsector to the other and within each subsector. In light chemicals and engineering industries, all NPRs are substantially lower (by about 20 percentage points) than the levels indicated by CNPRs. In each of all other subsectors, the products/projects are distributed in approximately equal shares between excess and shortfall of nominal protection relative to the CNPR levels. This 50/50 distribution could be construed as the result of an uncontrolled, rather than a mastered process.

Fourthly, the extra-costs paid for inputs (which are on average 50% above international prices) account for some two-thirds to three-fourths of the required CNPR, and constitute the major source of output price distortions and uncompetitiveness. Relatedly, intermediates (basic steel and chemical products, synthetic yarns) show the highest NPRs and CNPRs (about 60%).

Fifth, the actual and compensatory NPRs of about 45% are substantially lower than the average tariff collection rates (60-70%) and much lower than the official customs tariffs (120-140%). This amount of "water" in the tariffs, introduced for generating public revenue, is particularly high for capital goods whose imports pay tariffs averaging 80% (with a notable exception for electronic industries machinery, which pay about 40%). The resulting structure of protection: highest for capital goods, high for intermediates, and lower for final goods, is the invert of the generally observed one.

37. Levying for public revenue purpose the highest duties on imported capital goods has been a cardinal error, in view of its pervasive and long-lasting effects on industrial production costs and prices. First, the investment costs

for industrial projects in India are generally 40% to 50% 14/ more expensive than what they would be with access to capital goods at international prices. Such additional investment costs, by increasing in the Value Added the renumeration normally required by the capital (interest, depreciation, and return on assets), would jack up the production costs by 10 to 15% of output international prices and do account for one-fourth to one-third of the required CNPRs (this impact of extra-investment costs on production costs is more pronounced, 15-20%, in some final goods industries such as light chemicals and engineering industries and in synthetic yarns due to their higher Value Added content).

Second, the additional costs of capital goods would require a substantial Compensatory Effective Protection Rate (CEPR) of 30% on average (from 15% in electronic industries to 45% in synthetic yarns) to allow industrial projects to earn returns at least equivalent to those available under a free-trade regime. Taxation and surcharges on other investment costs (e.g., cement, buildings,...) would require an additional 10 percentage points of CEPR on average.

Thirdly, though the actual Effective Protection (EPR) of 30% is close to the CEPR on average, there are wide variations in the EPRs and the discrepancies between EPRs and CEPRs from one subsector to the other and within each subsector. The failure of economic authorities to fine-tune the structure of effective protection (and incentives) to the levels required to compensate for the distortions introduced by their pricing policies for capital goods is greater than for nominal protection fine-tuning. Actual EPR varies from -10% to 8% in final goods industries (engineering, light chemicals, electronics, food industries) to high 60-75% in industries producing essentially intermediates (basic steel products, tyres, synthetic yarns). Furthermore, the EPR-CEPR discrepancies range from minus 35-60% in final goods industries (light chemicals, engineering where all EPRs are substantially below CEPRs) to plus 20-40% in the intermediate industries. The distribution of levels of EPR-CEPR discrepancy among projects/products within most subsectors becomes the result of a quasi-random process.

Fourth, the distortions in capital goods prices are "magnified" into larger distortions in Effective protection and incentives. About 80% of the projects have financial rates of return lower (often much lower) than ERRs. In this process, some industries (those producing essentially intermediates) may earn extra profits and rents. More undesirable, though, other industries (generally those producing final goods) pay higher financial charges and generate lower profits and cash than their foreign competitors (often operating under a free-trade or similar regime) and thus are heavily handicapped over the long-term in their capability to modernize, innovate and keep abreast in the global competition.

38. The structure of incentives provided by EPRs appears somewhat more rational with respect to markets and external trade orientation, though the levels of EPRs and EPR-CEPR discrepancies show again wide variations within the dominant group of import-substitution projects (two-thirds of all projects) and those which intend to export a marginal or substantial share of their output (one-third of all projects). Actually, import-substitution projects comprise two

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14/ and up to 80% more expensive in imported capital-intensive projects (e.g., POY, XLPE power cables).

contrasted subgroups: - a large majority (80%) of projects with no plans nor potential for exports which have uncompetitive output prices (55% above international prices on average), positive profitability on domestic prices and largely negative profitability (-41%) on international prices, and high EPRs (60% on average) well above CEPRs by some 30 percentage points; and - an anomalous small group of "potential" exporters (14% of the whole sample) which all would produce at internationally competitive prices with good profitability (at full cost) on the domestic as well as international prices and nevertheless do not plan the export at all. Strikingly, these potential exporters, which pay the highest import duties on their imported capital goods and would thus require higher CEPRs (45-50%), all have negative actual EPRs, averaging -27%.

39. Projects with export plans generally have uncompetitive output prices (40% above international prices on average), a positive profitability on domestic markets, a negative profitability (at full cost) on their export prices, and relatively lower CEPRs (25 to 40%) due to the partial exemptions of tariffs on their imported equipment. These projects comprise also two contrasted subsets: - a minority (30%) of marginal exporters (export share below 15%) with high EPRs (about 50% on average); and - significant exporters (the export share in output range between 20 and 75%, averaging 45%) which receive on their combined output a low or negative EPR, averaging -16%, which is in most cases well below CEPR by some 37 percentage points on average. Another distinct feature of significant exporters, which most likely explains their export orientation in accordance with the findings of other analyses, is the positive profitability of export prices over their marginal production costs which ranges from -8% to 46% and averages 15.5%. The marginal profitability of export prices for marginal exporters is negative or low, averaging only 1%, and is largely negative for most non-exporters (averaging -12%). 15/

40. These features highlight a common underlying pattern, namely the marked bias of the effective protection structure and incentives in favor of the domestic market and import-substitution and against export-orientation. 16/ The incentive of Effective protection decreases regularly and markedly with the export orientation and potential: +60% for non exporters with no export potential; +50% for marginal exporters; -16% for significant exporters and -27% for the anomalous group of projects with the best export potential. This bias is not offset by the marginal and insufficient incentives offered to exporters for lower input prices (which average about 40% above world prices, compared to about 50% for non-export projects), lower duties on imported equipment (60% versus 75% on average), and CCS marginal income which adds some 3% to the export revenues and profitability of significant exporters.

41. In view of the priority and urgency for India to reduce its external trade deficit primarily by promoting and increasing further its exports of manufactured products, rebalancing the structure of incentives and effective protection in favor of exports would be an important task. This task would be difficult,

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15/ Naturally, the potential exporters have not only positive full-cost profitability over international prices but also large marginal-cost profitability.

16/ This bias revealed by the project sample may be due also in part to a bias of DFIs to finance import-substitution projects.

possibly impossible, to achieve by trying to fine-tune the structure and levels of nominal protection for outputs and inputs. The main obstacles are the complexity and quasi-random effects of the structure of tariffs, actual collection rates and exemptions, as well as the generally loose relationship between the landed prices (after duties) of imports and the market-driven domestic prices for most manufactured products. Nevertheless, the task should be undertaken promptly. A first urgent and simple measure should be to slash down the tariffs on imported capital goods, and further liberalize their imports, to levels which would effectively induce the local capital goods industry to increase efficiency, modernize its product-mix and lower its prices. A moderate uniform tariff of about 25% would be advisable for capital goods, with full exemption for projects exporting at least half their output (cf. Export Strategy report). Some interim exceptional higher tariffs could be maintained for capital goods specific to subsectors and product-groups dominated by very few enterprises in monopolistic or oligopolistic positions giving them a price-maker role, while increased supply and competition should be promoted in these product-groups/subsectors to the extent permitted by the relative sizes of MESs and markets.

42. Another important, because most effective, measure would be to eliminate the dominant negative effects of high prices of intermediates and other inputs. The simulated elimination of all surcharges on inputs (tariffs on imported inputs, price differentials on local ones, non-deductible excise taxes) indicates that, even without correcting for the effects of high investment costs, most projects (including the import-substitution ones) would earn from the current international prices a positive profit margin on their marginal as well as full production costs. The proportion of projects with such a positive profit margin would triple from 20% to 63%. Among the import-substituting projects which have no prospects nor potential for export under the present trade regime, this proportion would increase dramatically from 0 to 50% if they could procure their inputs at international prices.

43. The tariffs actually collected on imported intermediates and inputs should be lowered to such levels that domestic producers are progressively put under competitive pressure and adjust their prices downwards. Acting upon the official customs tariffs only would be largely ineffective in India's system of multiple regimes and exemptions. Most exemptions should be eliminated, and all special import regimes unified, so that official tariffs and actual collection rates converge to each other and coincide ultimately. Reduction of tariffs down to current collection rates should then take place (causing little or no loss of public revenue), in one step preferably. Further reduction of tariffs should then begin with focus on major intermediates and inputs (basic steel products, heavy chemicals, synthetic yarns and their upstream components, ...) down to about 40%, with a priority on product-groups dominated by few enterprises in a price-maker position. This level of 40% protection for inputs (coupled with 25% for capital goods) was shown by simulation to maintain the existing profit rate of intermediates/inputs industries, and their viability. This set of measures would realign the higher NPRs of intermediates and inputs from heavy industries (often highly concentrated) down to the lower NPRs of final products subsectors where domestic competition is generally more active and export-orientation higher, and thus contribute to the desirable greater homogeneity and uniformity of the protection and incentives structure. More importantly, it would make the

most effective contribution in reducing the causes of uncompetitiveness of Indian manufacturers, enhancing their export potential and profitability as underlined in the previous paragraph, and possibly arousing pervasively within the industrial fabric the enterprises' interest for marginal or significant exports.

44. Finally, custom tariffs and collection rates restructured as proposed would fulfill more effectively their primary purpose of providing protection and incentive signals, and somewhat disregard their secondary function of public revenue generation which in India has become predominant and introduced pervasive substantial distortions in prices and incentives. The function of public revenue generation, which is currently another critical issue in India, should be fulfilled by other more specific and adequate instruments, in particular direct taxation (income tax) and non-tariff indirect taxation (neutral excise taxes, MODVAT, and preferably the consumption VAT). How to shift this function from customs tariffs to other taxation instruments is the subject of another analysis.

COMPARATIVE PROFITABILITIES OF DOMESTIC AND INTERNATIONAL MARKETS

ANNEX I

Export Status	Product (Subsector)	Output Export Share (%)	Domestic Output NPC	EPR (%)	VA (Output Intnl pce) %	Full cost Profitblty (%) of Dom.Price	of IntnlPrce	Marginal Profitablty (%) of IntnlPrce	of FOB+CCS
Non Exporter									
	Soybean Oil (36)	0	1.49	115	11				
	PFY (45)	0	1.67	47	46	24	-10	45	N.A.
	POY (45)	0	1.76	104	22	0.5	-75	-47	N.A.
	NTY (45)	0	1.65	53	34	10	-48	-16	N.A.
	Paper (52)	0	1.28	75	29				
	PVC Tiles (57)	0	1.48	19	43				
	Plastic Profiles (57)	0	1.44	51	22	5	-37	-10	N.A.
	Phenols (60/61)	0	1.64	153	15	13	-43	-27	N.A.
	Buta Rubber (67)	0	1.77	68	37	6	-66	-19	N.A.
	EPM Rubber (67)	0	1.67	121	28	8	-55	-8	N.A.
	ABS (67)	0	1.77	96	20	14	-52	-26	N.A.
	Alpha Olephins (67)	0	1.77	25	39	6	-66	-30	N.A.
	SBR (67)	0	1.77	143	19	9	-61	-24	N.A.
	Spec.Steel Castgs (73/74)	0	1.49	-26	31				
	Forgings (73/74)	0	1.54	26	41				
	ColdRoll Coils (73/74)	0	1.65	174	17				
	Steel Tubes (73/74)	0	1.49	70	40				
	Iron Pipes (73/74)	0	1.25	-10	46	15	-6	15	N.A.
	Coated SteelSheets (73/74)	0	1.68	93	10	2	-65	-49	N.A.
	Jelly Filled Cables (85)	0	1.43	15	37	16	-20	1	N.A.
	Batteries (86)	0	1.26	-15	42				
	Fluoresc. Lamps (87)	0	1.26	27	56	13	-10	37	N.A.
	EPABXs (88)	0	1.2	13	42	17	-0.4	21	N.A.
	TV Loudspeakers (90)	0	1.2	120	23	14	-12	14	N.A.
	Audio Systems (90)	0	1.54	45	24	11	-37	-21	N.A.
	Single-sided PCBS (90)	0	1.71	159	22	18	-41	-18	N.A.
	Step Motors (90)	0	1.57	31	37	11	-40	-6	N.A.
	B&W and Color TVs (90)	0	1.68	92	9	5	-60	-51	N.A.
	Electronic Tuners (90)	0	1.94	287	14	14	-67	-34	N.A.
	Auto Electricals (93)	0	1.67	34	39	5	-60	-33	N.A.
	2-W Shock Absorbers (94)	0	1.3	17	26	10	-17	5	N.A.
	Average	0.00	1.55	71.03	30.45	11.15	-41.23	-12.22	
	Variance	0.00	0.04	4264.74	143.15	45.81	514.57	642.08	0.00
		31	31	31	31	23	23	23	23
Potential Export									
	Glucose (38)	0	1.02	-18	52				
	Glucose (38)	0	0.9	-26	54	11	20	42	N.A.
	Nitric Acid (60/61) *	0	1.14	-28	70	11	-2	26	N.A.
	Aluminum Extrusions (75)	0	0.81	-58	27				
	Aluminum Foil (75) **	0	1.08	-23	25	4	-3.7	9	N.A.
	Bearings (77)	0	1.04	-14	76	16	13	62	N.A.
	XLPE Cables (85)	0	0.96	-34	65	31	34	46	N.A.
	Carburettors (93)	0	1.03	-23	65	15	12	36	N.A.
	Average	0.00	1.00	-29.25	54.25	14.67	12.22	38.50	
	Variance	0.00	0.01	159.19	319.44	68.22	155.20	250.58	0.00
		8	8	8	8	6	6	6	6

Marginal Export								
Tyres(56)	5	1.55	83	19	4	-49	-19	-19
Magnetic Oxides(68)	10	1.27	25	52	20	-14	40	40
Forgings(73,74)	5	1.84	176	18	11	-53	-22	-22
Washing Machines(87)	5	1.3	-9	21	5	-22	-13	-13
Computer Terminals(90)	13	1.14	19	25	12	-12	22	22
PCs 90)	10	1.21	6	16	5	-14	1	1
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Average	8.00	1.39	50.00	25.17	9.67	-24.33	1.22	1.22
Variance	10.00	0.06	7994.67	151.81	10.22	545.00	522.22	522.22
	6	6	6	6	6	6	6	6
Significant Exports								
Vanillin(28)	50	2.29	137	27	34	-51	-1	-1
Synthetic Yarn(45)	52	1.41	-20	35	18	-16	9	9
BOPP Film(57)	20	1.66	79	28	12	-46	0	0
PA(61/67)	75	2.1	-10	49	44	-18	14	14
MA(61/67)	50	1.82	-32	44	22	-41	-8	-8
MA(61/67)	25	1.81	61	48	21	-43	18	28
Pesticides(53)	45	0.99	-29	66	19	20	46	46
Na Ampicillin-Drug(65)	50	1.62	-13	18	24	-23	-19	-12
Diesel Engines(80/83)	17	1.02	-11	30	8	6	21	21
Machine-Tools(81)	20	1.03	-21	41	7	4.5	28	28
Power Handtools(84)	60	1.47	-23	59	17	-22	15	15
Mainframes&Software(90)	20	0.92	-35	60	13	21	43	43
Floppies 100%EDU)(90)	100	1	0	31	11	11	28	28
Bus Bodies(93)	58	0.7	-23	36	-20	16	28	28
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Average	45.86	1.42	4.29	40.86	16.43	-12.96	15.50	18.11
variance	535.12	0.22	2418.06	186.27	195.39	825.80	328.11	265.93
	14	14	14	14	14	14	14	14
Overall Average	11.69	1.43	39.46	35.61	12.91	-24.62	3.57	5.34

*: Sales price projected at 6% below market price

**: Sales price projected at 10% below market price

IMPACT OF INPUT COSTS AND TAXES ON COMPETITIVENESS AND PROFITABILITY

ANNEX II

Export Status	Product(Subsector)	Input NPC	Input Cost as % Output Internatnl Price	Adjusted Intnl Price Profitblty(%) Full Cost	Marg: Cost	Depreciation Rate(%)
Non Exporter						
	Soybean Oil(36)	1.41	37			
	PPY(45)	1.84	46	36	91	10.7
	POY(45)	1.3	50	-23	4	11.2
	NTY(45)	1.77	51	4	35	11
	Paper(52)	1.09	6			
	PVC Tiles(57)	1.7	40			
	Plastic Profiles(57)	1.42	38	1	28	11.6
	Phenols(60/61)	1.48	41	-3	13	10
	Buta Rubber(67)	1.92	58	-9	19	11.2
	EPM Rubber(67)	1.47	34	-21	26	11.4
	ABS(67)	1.73	19	-33	-7	19.8
	Alpha Olephins(67)	2.11	58	1	38	10.2
	SBR(67)	1.54	52	-9	28	10.8
	Spec.Steel Castgs(73/74)	1.34	57			
	Forgings(73/74)	1.73	43			
	ColdRoll Coils(73/74)	1.52	44			
	Steel Tubes(73/74)	1.36	22			
	Iron Pipes(73/74)	1.54	29	23	44	12.5
	Coated Steel Sheets(73/74	1.66	59	-6	10	10.7
	Jelly Filled Cables(85)	1.61	38	19	39	9.2
	Batteries(86)	1.56	32			
	Fluoresc. Lamps(87)	1.26	11	2	48	10.2
	EPABXs(88)	1.25	14	14	36	8.4
	TV Loudspeakers(90)	1.02	2	-10	15	8.4
	Audio Systems(90)	1.56	42	6	22	10.1
	Single-sided PCBS(90)	1.46	36	-5	18	9.8
	Step Motors(90)	1.71	45	5	38	9.4
	B&W and Color TVs(90)	1.66	60	1	10	6.7
	Electronic Tuners(90)	1.63	54	-13	20	8.7
	Auto Electricals(93)	1.38	56	-3	22	8.3
	2-W Shock Absorbers(94)	1.39	25	3	30	7.4
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	Average	1.58	39.03	-0.74	29.17	10.33
	Variance	0.05	271.9e	225.22	358.93	5.01
		31	31	23	23	23
Potential Export						
	Glucose(38)	1.24	10			
	Glucose(38)	1.12	5	25	48	9.5
	Nitric Acid(60/61)	2.13	34	32	70	7.8
	Aluminum Extrusions(75)	0.9e	-3			
	Aluminum Foil(75)	1.21	16	12	25	10.3
	Bearings(77)	1.61	15	28	77	12.4
	XLPE Cables(85)	1.62	22	56	67	11.6
	Carburettors(93)	1.51	18	30	54	9.5
	---	---	---	---	---	---
	Average	1.43	14.33	30.50	56.33	10.35
	Variance	0.12	148.48	171.92	297.14	3.14
		8	8	5	5	5

Marginal Export						
	Tyres(56)	1.39	33	-15	15	10.4
	Magnetic Oxides(68)	1.26	12	11	52	10.7
	Forgings(73/74)	1.63	51	-13	28	19.8
	Washing machines(87)	1.29	31	7	18	11.1
	Computer Terminals(90)	1.58	19	18	40	17.2
	PCs(90)	1.22	18	5	19	16
	---	---	---	---	---	---
	Average	1.43	27.33	2.17	28.67	14.20
	Variance	0.03	166.22	147.47	177.89	13.22
		6	6	6	6	6
Significant Exports						
	Vanillin(38)	1.38	28	-23	26	11
	Synthetic Yarn(45)	1.41	27	10	32	10.3
	BOPP Film(57)	1.29	23	-23	23	10.8
	PA(61/67)	1.59	31	14	45	11
	MA(61/67)	1.26	21	-20	14	10.2
	MA(61/67)	1.61	32	-12	49	9.4
	Pesticides(63)	1.53	18	37	64	11.8
	Na Amoicillin(Drug)(65)	1.45	37	14	18	11.1
	Diesel Engines(80/83)	1.08	5	11	27	
	Machine-Tools(81)	1.21	12	17	41	11.1
	Power Handtools(84)	1.4	19	-2	34	10.7
	Mainframes&Software(90)	1.3	12	33	55	13.1
	Floppies(100%EOU)(90)	1	0	11	28	10.7
	Bus Bodies(93)	1.77	30	46	58	9.7
	---	---	---	---	---	---
	Average	1.38	21.07	8.07	36.71	10.84
	Variance	0.04	108.49	449.35	224.20	0.79
		14	14	14	14	13
	Overall Average	1.49	30.27	5.96	34.18	10.96

Relationship Between the Effective Protection Rate (EPR) and the Financial and Economic Returns for an Industrial Project

1. Consider an industrial project requiring an investment I, consuming and producing tradeables, and generating annually under permanent operating conditions a financial cash flow equal to: $CF = VAd - W$,

where: VAd is the project's Value Added in the domestic prices resulting from the country's protection regime, and
W is the project's annual labor cost.

The annual return on the investment is $FR = \frac{CF}{I} - \frac{1}{N}$,

where: N is the project's life (in number of years).

Under a free-trade regime, this project would require an investment Ii (net of tariffs, taxes, subsidies, and price differences between local and imported capital goods), and would generate a cash flow: $CE = VAi - W$,

where: VAi is the project's Value Added in international prices.

The annual return on investment would be $ER = \frac{CE}{Ii} - \frac{1}{N}$

2. Introducing the following notations:

$y = \frac{I}{Ii}$ (ratio of investment cost in domestic to international prices)

$s = \frac{W}{VAi}$ (share of Labor in VA under free-trade regime)

and $EPR = \frac{VAd - VAi}{VAi}$ (by definition, the Effective Protection Rate),

simple algebraic manipulations lead to the following relationship between FR and ER:

$$\frac{FR}{ER} = \frac{1}{y} \cdot (1 + \frac{EPR}{1-s})$$

3. Under simplifying assumptions permitting algebraic manipulations, the above relationship leads to a second relationship between the project's Internal Rates of return achieved under the two alternative trade regimes. The assumptions are those of the elementary model for the computation of an internal rate of return: the investment is implemented in one year, and reaches in its first year of operation its operating capacity, thus generating a constant annual cash flow during the N years of its life. When the annual cash flow to investment ratio R is relatively small (below 0.3, which is the case of most industrial projects), it can be shown that the internal rate of return IRR is well approximated by the following formula:

$$IRR = R - \frac{1}{N(1 + \frac{N-1}{2}.R)}$$

4. Applying twice this formula to the project considered earlier under a protection regime and a free-trade regime, the internal rate of return under protection (equivalent to the Financial Rate of Return, noted MRR) and the internal rate of return under free-trade (equivalent under standard circumstances to the Economic Rate of Return, noted ERR) are shown to share the following approximative relationship:

$$MRR - ERR = C \cdot [\frac{1}{y}(1 + \frac{EPR}{1-s}) - 1]$$

where: C is a constant specific to the project's parameters under the free-trade regime. 1/

Simple algebra shows that MRR-ERR $\gtrless$ 0 is equivalent to

$$\frac{EPR}{1-s} \gtrless y-1, \text{ that is } EPR \gtrless (1-s)(y-1) = CEPR$$

5. Remark: MRR is the financial Rate of return before income tax. If the project under protection is subject to an income tax T, the financial rate of return after tax FRR and the ERR enjoy a relationship similar to that above where EPR is replaced by EPR-t (with t=T/VAi).

6. The level of Output nominal protection required to ensure a level of Effective Protection equal at least to CEPR is derived from the general formula of EPR:

$$EPR = NPRi + \frac{NPRo - NPRi}{a},$$

where: a is the VA/Output ratio in international prices.

Hence: $NPRi + \frac{NPRo - NPRi}{a} \geq CEPR$ leads to:

$$NPRo \geq a.CEPR + (1-a)\,NPRi = CNPR$$

1/ Specifically, $C = R \cdot [1 + \frac{N-1}{2N(1 + \frac{N-1}{2}.R)2}]$, where $R = \frac{CE}{Ii} = \frac{VAi-W}{Ii}$

IMPACT OF INVESTMENT COSTS ON VALUE ADDED AND EPRs

ANNEX IV

Export Status	Product(Subsector)	VAm (Crores)	Duties(On Impr KalGood	Factor Y1	Factor Y2	CEPR1	CEPR2	Actual EPR	EPR Excess/Shortfall EPR-CEPR2	EPR-CEPR1
Non Exporter										
	Soybean Oil(36)	4.28	60		1.49		3o	115	79	
	PFY(45)	33.78	89	1.45	1.65	35	50	89	39	54
	POY(45)	5.31	90	1.79	1.81	69	71	90	19	21
	NTY(45)	20.41	84	1.66	1.66	58	58	53	-5	-5
	Paper(52)	2.88	86		1.58		46	75	29	
	PVC Tiles(57)	4.18	71		1.5		38	19	-19	
	Plastic Profiles(57)	1.12	40	1.4	1.42	29	31	51	20	22
	Phenols(60/61)	0.91	N.A.	1.38	1.42	25	27	153	126	128
	Ruta Rubber(67)	5.11	134	1.5	1.5	43	43	68	25	25
	EPM Rubber(67)	6.01	136	1.4	1.44	32	35	121	86	89
	ABS(67)	2.63	82	1.42	1.47	11	13	86	73	75
	Alpha Olephins(67)	23.46	90	1.41	1.76	37	69	25	-44	-12
	SBR(67)	8.82	84	1.5	1.69	41	57	143	86	102
	Spec.Steel Castgs(73/74)	4.48	86		1.63		55	-26	-81	
	Forgings(73/74)	2.7	38		1.505		37	26	-11	
	ColdRoll Coils(73/74)	4.25	N.A.		1.55		48	174	126	
	Steel Tubes(73/74)	3.14	86		1.65		56	70	14	
	Iron Pipes(73/74)	5.8	110	1.51	1.71	44	61	-10	-71	-54
	Coated SteelSheets(73/74	6.25	90	1.44	1.59	34	46	93	47	59
	Jelly Filled Cables(85)	7.29	8[illegible]	1.4	1.66	27	45	15	-30	-12
	Batteries(86)	8.51	90		1.84		6o	-15	-81	
	Fluoresc. Lamps(87)	10.74	80	1.45	1.6	42	56	27	-29	-15
	EPABXs(88)	5.16	31	1.22	1.33	15	23	13	-10	-2
	TV Loudspeakers(90)	0.44	36	1.2	1.4	14	27	120	93	106
	Audio Systems(90)	1.33	42	1.42	1.51	32	39	45	6	13
	Single-sided PCBS(90)	0.7	42	1.24	1.48	14	28	159	131	145
	Step Motors(90)	2.07	47	1.33	1.38	22	25	31	6	9
	B&W and Color TVs(90)	5.21	44	1.38	1.55	14	20	82	62	68
	Electronic Tuners(90)	0.55	44	1.26	1.39	-3	-5	287	292	290
	Auto Electricals(93)	3.06	92	1.52	1.55	39	41	34	-7	-5
	2-W Shock Absorbers(94)	1.83	61	1.25	1.45	13	23	17	-6	4
	Average(weighted)					31.03	50.53	59.67	9.15	20.47
	Average(plain)	192.41	74.17	1.41	1.55	29.87	40.81	71.94	31.13	48.04
	Variance		754.63	0.02	0.02	258.46	293.38	4232.25	5540.31	5214.22
		31	29	23	31	23	31	31	31	23
Potential Export										
	Glucose(38)	8.97	90		1.52		43	-18	-61	
	Glucose(38)	10.03	93	1.32	1.49	29	45	-26	-71	-55
	Nitric Acid(60/61)	2.42	91	1.53	1.62	46	54	-28	-82	-74
	Aluminum Extrusions(75)	5.23	37		1.6		52	-58	-110	
	Aluminum Foil(75)	2.37	81	1.43	1.58	34	46	-33	-79	-67
	Bearings(77)	11.22	54	1.51	1.51	49	49	-14	-63	-63
	XLPE Cables(85)	10.86	95	1.85	1.9	76	80	-34	-114	-110
	Carburettors(93)	7.84	68	1.48	1.61	37	46	-23	-69	-60
	Average(weighted)					36.44	53.07	-26.78	-79.85	-55.33
	Average(plain)	58.94	76.13	1.52	1.60	45.17	51.88	-29.25	-81.13	-71.50
	Variance		395.61	0.03	0.01	236.47	124.86	159.19	262.86	330.92
		8	8	6	8	6	8	8	8	6

Marginal Export									
Tyres(56)	44.03	88	1.415		33		83		50
Magnetic Oxides(68)	4.88	59	1.3	1.5	25	42	25	-17	0
Forgings(73/74)	1.41	63	1.53	1.575	19	21	176	155	157
Washing machines(87)	9.48	47	1.31	1.46	24	35	-9	-44	-33
Computer Terminals(90)	2.17	45	1.39	1.53	27	35	19	-16	-8
PCs(90)	12.97	39	1.23		12		6		-6
Average(weighted)					27.27	8.57	54.16	-4.22	26.89
Average(plain)	74.94	56.83	1.36	1.52	23.33	33.25	50.00	17.50	26.67
Variance		261.47	0.01	0.00	42.89	58.19	3994.67	6246.25	4011.89
	6	6	6	4	6	4	6	4	6
Significant Exports									
Vanillin(38)	0.84	N.A	1.5		38		137		99
Synthetic Yarn(45)	4.45	N.A	1.33	1.53	23	37	-20	-57	-43
BOPP Film(57)	1.56	89	1.49	1.58	33	39	79	40	46
PA(61/67)	20.67	0	1.04	1.16	3	15	-10	-25	-13
MA(61/67)	7.39	94	1.435	1.59	40	53	-32	-85	-72
NA(61/67)	4.12	98	1.39	1.62	33	53	61	8	28
Pesticides(63)	6.52	N.A.	1.39	1.5	31	39	-29	-68	-60
Na Ampicillin(Drug)(65)	0.8	N.A.	1.3	1.71	28	66	-13	-79	-41
Machine-Tools(81)	4.52	95	1.4	1.54	34	46	-21	-67	-55
Power Handtools(84)	9.42	90	1.39	1.85	31	68	-23	-91	-54
Mainframes&Software(90)	19.59	30	1.18	1.29	13	21	-35	-56	-48
Floppies(100%EOU)(90)	1.4	0	1.04	1.09	3	6	0	-6	-3
Bus Bodies(93)	7.2	N.A.	1.43		36		-23		-59
Average(weighted)					21.11	30.75	-15.88	-46.06	-36.99
Average(plain)	88.48	62.00	1.33	1.50	26.62	40.27	5.46	-44.18	-21.15
Variance		*******	0.02	0.05	145.16	362.38	2584.71	1645.24	2392.44
	13	8	13	11	13	11	13	11	13
Overall Average(plain)	414.77	70.53	1.40	1.55	30.08	41.78	40.81	-1.70	11.69
o.w.:Electronics	51.59	36.36	1.26	1.40	14.82	21.90	66.09	50.20	51.27
All Others	363.18	79.93	1.44	1.58	34.62	46.30	34.89	-13.50	-0.08
Overall Average(weighted)					29.00	39.09	30.28	-17.69	-1.40

N.A.: Not Applicable (no imports of Capital Goods)

IMPACT OF INVESTMENT COSTS ON VALUE ADDED AND EPRs, BY SUBSECTOR

ANNEX V

Export Status	Subsector(Product)	VAm (Crores)	Duties(On Impr KalGood	Factor Y1	Factor Y2	CEPR1	CEPR2	Actual EPR	EPR Excess/Shortfall EPR-CEPR2	EPR-CEPR1
	Heavy Chemicals:									
NE	Phenols(60/61)	0.91		1.38	1.42	25	27	153	126	128
NE	Buta Rubber(67)	5.11	134	1.5	1.5	43	43	68	25	25
NE	EPM Rubber(67)	6.01	136	1.4	1.44	32	35	121	86	89
NE	ABS(67)	2.63	82	1.42	1.47	11	13	86	73	75
NE	Alpha Olephins(67)	23.46	90	1.41	1.76	37	69	25	-44	-12
NE	SBR(67)	8.82	84	1.5	1.69	41	57	143	86	102
CouldExport	Nitric Acid(60/61)	2.42	91	1.53	1.62	46	54	-28	-82	-74
Exptr	PA(61/67)	20.67	0	1.04	1.16	3	15	-10	-25	-13
Exptr	MA(61/67)	7.39	94	1.435	1.59	40	53	-32	-85	-72
Exptr	MA(61/67)	4.12	98	1.39	1.62	33	53	61	8	28
	AVERAGE (weighted)	81.54				28.19	44.90	37.14	-7.76	8.95
	Average (plain)		89.89	1.40	1.53	31.10	41.90	58.70	16.80	27.60
			9	10	10	10	10	10	10	10
	Synthetic Textiles:									
NE	PFY(45)	33.78	89	1.45	1.65	35	50	89	39	54
NE	POY(45)	5.31	90	1.79	1.81	69	71	90	19	21
NE	NTY(45)	20.41	84	1.66	1.66	58	58	53	-5	-5
Exptr	Synthetic Yarn(45)	4.45		1.33	1.53	23	37	-20	-57	-43
	AVERAGE (weighted)	63.95				44.33	53.39	70.01	16.62	25.68
	Average (plain)		87.67	1.56	1.66	46.25	54.00	53.00	-1.00	6.75
			3	4	4	4	4	4	4	4
	Basic Steel Products:									
NE	Spec.Steel Castgs(73/74)	4.48	86		1.63		55	-26	-81	
NE	Forgings(73/74)	2.7	38		1.505		37	26	-11	
NE	ColdRoll Coils(73/74)	4.25			1.55		48	174	126	
NE	Steel Tubes(73/74)	3.14	86		1.65		56	70	14	
NE	Iron Pipes(73/74)	5.8	110	1.51	1.71	44	61	-10	-71	-54
NE	Coated SteelSheets(73/74	6.25	90	1.44	1.59	34	46	93	47	59
Margin.Expt	Forrings(73/74)	1.41	63	1.53	1.575	19	21	176	155	157
	AVERAGE (weighted)	28.03				36.74	49.84	60.09	10.25	20.57
	Average (plain)		78.83	1.49	1.60	32.33	46.29	71.86	25.57	54.00
			6	3	7	3	7	7	7	3
	Electronics:									
NE	TV Loudspeakers(90)	0.44	36	1.2	1.4	14	27	120	93	106
NE	Audio Systems(90)	1.33	42	1.42	1.51	32	39	45	6	13
NE	Single-sided PCBS(90)	0.7	42	1.24	1.48	14	28	159	131	145
NE	Step Motors(90)	2.07	47	1.33	1.38	22	25	31	6	9
NE	B&W and Color TVs(90)	5.21	44	1.38	1.55	14	20	82	62	68
NE	Electronic Tuners(90)	0.55	44	1.26	1.39	-3	-5	287	292	290
NE	EPABIs(88)	5.16	31	1.22	1.33	15	23	13	-10	-2
Margin.Expt	Computer Terminals(90)	2.17	45	1.39	1.53	27	35	19	-16	-8
Margin.Expt	PCs(90)	12.97	39	1.23		12		6		-6
Exptr	Mainframes&Software(90)	19.59	30	1.18	1.29	13	21	-35	-56	-48
Exptr	Floppies(100%EOU)(90)	1.4	0	1.04	1.09	3	6	0	-6	-3
	AVERAGE (weighted)	51.59				14.07	22.03	7.24	-14.37	-6.83
	Average (plain)		36.36	1.26	1.40	14.82	21.90	66.09	50.20	51.27
			11	11	10	11	10	11	10	11

	Food Industries:									
NE	Soybean Oil(36)	4.28	80		1.49		76	115	79	
CouldExport	Glucose(38)	8.97	90		1.52		43	-18	-61	
CouldExport	Glucose(38)	10.03	93	1.22	1.49	29	45	-26	-71	-55
Exptr	Vanillin(38)	0.84		1.5		38		137		99
	AVERAGE (weighted)	24.12				28.70	42.57	7.67	-39.57	-43.10
	Average (plain)		91.00	1.41	1.50	37.50	41.33	52.00	-17.67	22.00
			3	2	3	2	3	4	3	2
	Miscellaneous Industries:									
NE	Paper(52)	2.98	86		1.58		46	75	29	
Margin.Expt	Tyres(56)	44.03	88	1.415		33		83		50
Exptr	BOPP Film(57)	1.56	89	1.49	1.58	33	39	79	40	46
NE	PVC Tiles(57)	4.18	71		1.5		38	19	-19	
NE	Plastic Profiles(57)	1.12	40	1.4	1.42	29	31	51	20	22
	AVERAGE (weighted)	53.77				32.90	39.72	76.81	9.13	49.20
	Average (plain)		74.80	1.44	1.52	31.67	38.50	61.40	17.50	39.33
			5	3	4	3	4	5	4	3
	Light Chemicals									
Exptr	Pesticides(63)	6.52		1.39	1.5	31	39	-29	-68	-60
Exptr	Na Ampicillin(Drug)(65)	0.8		1.3	1.71	28	66	-13	-79	-41
Margin.Expt	Magnetic Oxides(68)	4.88	59	1.3	1.5	25	42	25	-17	0
	AVERAGE (weighted)	12.2				28.40	41.97	-6.35	-48.32	-34.75
	Average (plain)		59.00	1.33	1.57	28.00	49.00	-5.67	-54.67	-33.67
			1	3	3	3	3	3	3	3
	Other Engineering Industries:									
CouldExport	Aluminum Extrusions(75)	5.23	37		1.6		52	-58	-110	
CouldExport	Aluminum Foil(75)	2.37	81	1.43	1.58	34	46	-33	-79	-67
CouldExport	Bearings(77)	11.22	54	1.51	1.51	49	49	-14	-63	-63
Exptr	Machine-Tools(81)	4.52	95	1.4	1.54	34	46	-21	-67	-55
Exptr	Power Handtools(84)	9.42	90	1.39	1.85	31	68	-23	-91	-54
CouldExport	XLPE Cables(85)	10.86	95	1.85	1.9	76	80	-34	-114	-110
NE	Jelly Filled Cables(85)	7.29	86	1.4	1.66	27	45	15	-30	-12
NE	Batteries(86)	8.51	90		1.84		66	-15	-81	
NE	Fluoresc. Lamps(87)	10.74	80	1.45	1.6	42	56	27	-29	-15
Margin.Expt	Washing Machines(87)	9.48	47	1.31	1.46	24	35	-9	-44	-33
NE	Auto Electricals(93)	3.06	92	1.52	1.55	39	41	34	-7	-5
CouldExport	Carburettors(93)	7.84	68	1.48	1.61	37	46	-23	-69	-60
Exptr	Bus Bodies(93)	7.2		1.43		36		-23		-59
NE	2-W Shock Absorbers(94)	1.83	61	1.25	1.45	13	23	17	-6	4
	AVERAGE (weighted)	99.57				40.42	54.12	-12.49	-65.79	-49.89
	Average (plain)		75.08	1.45	1.63	36.83	50.23	-11.43	-60.77	-44.08
			13	12	13	12	13	14	13	12
	OVERALL AVERAGE(weighted)	414.77				33.14	45.02	30.28	-18.39	-2.87
	OVERALL AVERAGE(plain)		70.53	1.40	1.55	30.08	41.78	40.61	-1.70	11.69
	Sample size		51	48	54	48	54	58	54	48

IMPACT OF INPUT AND INVESTMENT COSTS ON COMPETITIVENESS AND NPRs

ANNEX VI

Export Status	Product	OUTPUT (Nprices)	Input Cost Impact	VA Impact From CEPR1	VA Impact From CEPR2	CNPR1	CNPR2	Actual NPR	NPR Excess/Shortfall NPR-CNPR2	NPR-CNPR1
		(crores)	In % of Output Value at International Prices							
Non Exporter										
	Soybean Oil(36)	39.7	37		4		41	49	8	
	PFY(45)	73.16	45	16	23	61	68	67	-1	6
	POY(45)	21.14	50	18	18	68	68	76	8	8
	NTY(45)	59.6	50	20	20	70	70	68	-2	-2
	Paper(52)	9.86	6		13		20	28	8	
	PVC Tiles(57)	9.81	40		16		56	48	-8	
	Plastic Profiles(57)	5.06	33	6	7	39	40	44	4	5
	Phenols(60/61)	5.92	41	3	4	44	45	64	19	20
	Buta Rubber(67)	13.84	52	16	16	68	68	77	9	9
	EPM Rubber(67)	21.6	34	9	10	43	44	67	23	24
	ABS(67)	8.7	51	3	4	54	55	77	22	23
	Alpha Olephins(67)	60.07	68	14	27	82	95	77	-18	-5
	SBR(67)	46.04	52	8	11	60	63	77	14	17
	Spec.Steel Castgs(73/74)	14.27	57		17		75	49	-26	
	Forgings(73/74)	6.66	43		15		58	54	-4	
	ColdRoll Coils(73/74)	25.66	43		6		51	72	21	
	Steel Tubes(73/74)	7.94	22		22		44	49	5	
	Iron Pipes(73/74)	12.7	29	20	28	49	57	25	-32	-24
	Coated SteelSheets(73/74	61.33	59	4	5	63	64	68	4	5
	Jelly Filled Cables(85)	19.69	38	11	17	49	55	43	-12	-6
	Batteries(86)	20.21	32		28		60	26	-34	
	Fluoresc. Lamps(87)	19.25	11	23	31	34	42	26	-16	-8
	EPABIs(88)	12.21	14	7	10	21	24	20	-4	-1
	TV Loudspeakers(90)	1.88	2	3	6	5	8	30	22	25
	Audio Systems(90)	5.62	43	7	9	50	52	54	2	4
	Single-sided PCBS(90)	3.2	36	3	6	39	42	71	29	32
	Step Motors(90)	5.6	45	8	9	53	54	56	2	3
	B&W and Color TVs(90)	58.32	60	2	2	62	62	68	6	6
	Electronic Tuners(90)	1.88	54	-1	0	53	54	95	41	42
	Auto Electricals(93)	7.76	53	16	17	69	70	67	-3	-2
	2-W Shock Absorbers(94)	5.15	25	5	8	30	33	31	-2	1
	Average(weighted)		46.62	9.08	14.69	48.28	61.35	61.61	0.26	3.55
	Average(plain)	665.83	39.52	9.61	13.26	50.70	52.94	55.58	2.74	7.91
	Variance		253.02	45.19	68.64	297.43	292.01	377.21	285.55	207.38
		31	31	23	31	23	31	31	31	23
Potential Export										
	Glucose(38)	17.23	11		23		34	2	-32	
	Glucose(38)	18.67	6	15	24	21	30	-8	-38	-29
	Nitric Acid(60/61)	3.46	34	32	38	66	72	14	-58	-52
	Aluminum Extrusions(75)	19.16	-3		14		11	-19	-30	
	Aluminum Foil(75)	9.6	16	8	11	24	27	8	-19	-16
	Bearings(77)	14.8	15	27	37	52	52	4	-48	-48
	XLPE Cables(85)	16.8	22	49	51	71	73	-4	-77	-75
	Carburettors(93)	12.1	18	24	30	42	48	3	-45	-39
	Average(weighted)		11.85	19.04	27.88	29.70	39.72	-2.91	-42.63	-29.67
	Average(plain)	111.82	14.88	27.50	28.50	46.00	43.38	0.00	-43.38	-43.17
	Variance		105.11	186.92	154.75	364.33	421.98	91.25	287.48	345.14
		8	8	6	8	6	8	8	8	6

Marginal Export										
Tyres(56)	231.1	32	6		38		47			9
Magnetic Oxides(68)	9.32	12	13	22	25	34	25	-9		0
Forgings(73/74)	7.78	52	4	4	56	56	83	27		27
Washing machines(87)	44.8	31	5	7	36	38	30	-8		-6
Computer Terminals(90)	8.55	51	7	9	58	60	56	-4		-2
PCs(90)	78.87	18	2		20		19			-1
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Average(weighted)		29.33	5.21	7.65	34.53	7.80	29.59	-0.70		5.06
Average(plain)	380.42	32.67	8.17	10.50	38.83	47.00	41.33	1.50		4.83
Variance		225.89	11.81	47.25	200.81	125.00	405.56	200.25		121.58
	6	6	6	4	6	4	6	4		6
Significant Exports										
Vanillin (8)	2.15	28	10		38		64			26
Synthetic Yarn(45)	12.68	27	8	12	34	39	20	-19		-14
BOPP Film(57)	5.58	21	9	11	30	32	42	11		12
PA 6(67)	42.11	30	2	7	32	37	25	-12		-7
MA(61.67)	16.84	15	7	22	32	38	7	-38		-32
MA(61.67)	8.52	22	15	25	47	57	61	4		14
Pesticides(83)	9.83	28	20	26	78	44	-1	-45		-39
Na Ampicillin Drug(65)	4.4	37	5	11	42	49	34	-15		-8
Machine-Tools(81)	11.92	22	14	19	26	31	3	-28		-23
Power Handtools(84)	16.06	17	18	40	25	56	3	-53		-22
Mainframes&Software(89)	22.91	12	8	13	20	25	-8	-33		-28
Floppies(100%EOU)(90)	4.55	0	1	2	1	2	0	-2		-1
Bus Bodies(93)	19.8	49	13		62		41			-21
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Average(weighted)		23.73	9.96	14.43	33.63	32.43	16.21	-21.62		-17.41
Average(plain)	187.55	22.92	10.77	17.27	33.62	37.27	21.92	-20.91		-11.69
Variance		149.46	33.41	103.65	186.24	217.11	566.38	382.99		376.67
	13	13	13	11	13	11	13	11		13
Overall Average(plain)	1345.62	31.69	11.73	16.13	44.00	47.83	39.10	-9.00		-4.21
Overall Average(weighted)		35.65	9.94	12.06	40.80	40.38	43.70	-6.62		-1.70

IMPACT OF INPUT AND INVESTMENT COSTS ON COMPETITIVENESS AND NPRs,BY SUBSECTOR

ANNEX VII

Export Status	Product	OUTPUT (Uprices) (crores)	Input Cost Impact	VA Impact From CEPR1	CEPR2	CNPR1	CNPR2	Actual NPR	NPR Excess/Short NPR-CNPR2	NPR-CNPR1
				in % of Output Value at International Prices						
	Heavy Chemicals:									
NE	Phenols(60/61)	5.92	41	3	4	44	45	64	19	2
NE	Buta Rubber(67)	13.84	52	16	16	68	68	77	9	9
NE	EPM Rubber(67)	21.6	34	9	10	43	44	67	23	24
NE	ABS(67)	8.7	51	3	4	54	55	77	22	23
NE	Alpha Olephins(67)	60.07	68	14	27	82	95	77	-18	-5
NE	SBR(67)	46.04	52	8	11	60	63	77	14	17
CouldExport	Nitric Acid(60/61)	3.46	34	32	38	66	72	14	-58	-52
Exptr	PA(61/67)	42.11	30	2	7	32	37	25	-12	-7
Exptr	MA(61/67)	16.84	15	17	23	32	38	0	-38	-32
Exptr	MA(61/67)	8.52	32	15	25	47	57	61	4	14
	AVERAGE (weighted)	227.1	46.35	10.03	16.08	56.38	62.42	58.80	-3.63	2.42
	Average (plain)		40.90	11.90	16.50	52.80	57.40	53.90	-3.50	1.10
			10	10	10	10	10	10	10	10
	Synthetic Textiles:									
NE	PFY(45)	73.16	45	16	23	61	68	67	-1	6
NE	POY(45)	21.14	50	18	18	68	68	76	8	8
NE	NTY(45)	59.6	50	20	20	70	70	68	-2	-2
Exptr	Synthetic Yarn(45)	12.88	27	8	12	34	39	20	-19	-14
	AVERAGE (weighted)	166.78	46.03	17.07	20.44	63.02	66.48	64.87	-1.61	1.85
	Average (plain)		43.00	15.50	18.25	58.25	61.25	57.75	-3.50	-0.50
			4	4	4	4	4	4	4	4
	Basic Steel Products:									
NE	Spec.Steel Castgs(73/74)	14.27	57		17		75	49	-26	
NE	Forgings(73/74)	6.66	43		15		58	54	-4	
NE	ColdRoll Coils(73/74)	25.66	43		8		51	72	21	
NE	Steel Tubes(73/74)	7.94	22		22		44	49	5	
NE	Iron Pipes(73/74)	12.7	29	20	28	49	57	25	-32	-24
NE	Coated SteelSheets(73/74	61.33	59	4	5	63	64	68	4	5
Margin.Expt	Forgings(73/74)	7.78	52	4	4	56	56	83	27	27
	AVERAGE (weighted)	136.34	49.65	6.48	10.38	60.16	60.14	61.82	1.69	2.59
	Average (plain)		43.57	9.33	14.14	56.00	57.86	57.14	-0.71	2.67
			7	3	7	3	7	7	7	3
	Electronics:									
NE	TV Loudspeakers(90)	1.88	2	3	6	5	8	30	22	25
NE	Audio Systems(90)	5.62	43	7	9	50	52	54	2	4
NE	Single-sided PCBS(90)	3.2	36	3	6	39	42	71	29	32
NE	Step Motors(90)	5.6	45	8	9	53	54	56	2	3
NE	B&W and Color TVs(90)	58.32	60	2	2	62	62	68	6	6
NE	Electronic Tuners(90)	3.88	54	-1	0	53	54	95	41	42
NE	EPABIs(88)	12.21	14	7	10	21	24	20	-4	-1
Margin.Expt	Computer Terminals(90)	8.55	51	7	9	58	60	56	-4	-2
Margin.Expt	PCs(90)	78.87	18	2		20		19		-1
Exptr	Mainframes&Software(90)	32.91	12	8	13	20	25	-8	-33	-28
Exptr	Floppies(100%EQU)(90)	4.55	0	1	2	1	2	0	-2	-1
	AVERAGE (weighted)	215.59	30.48	3.24	3.53	33.72	27.43	32.23	-2.15	-1.49
	Average (plain)		30.45	4.27	6.60	34.73	38.30	41.91	5.90	7.18
			11	11	10	11	10	11	10	11

	Food Industries:									
NE	Soybean Oil(36)	39.7	37		4		41	49	8	
CouldExport	Glucose(38)	17.23	11		23		34	2	-32	
CouldExport	Glucose(38)	18.67	6	15	24	21	30	-8	-38	-29
Exptr	Vanillin(38)	3.15	28	10		28		64		36
	AVERAGE (weighted)	78.75	23.60	14.28	13.27	23.65	36.69	25.80	-12.48	-21.36
	Average (plain)		20.50	12.50	17.00	24.50	35.00	26.75	-20.67	-1.50
			4	2	3	2	3	4	3	2
	Miscellaneous Industries:									
NE	Paper(52)	9.86	6		13		20	29	9	
Margin.Expt	Tyres(56)	231.1	32	6		38		47		9
Exptr	BOPP Film(57)	5.58	21	9	11	30	32	43	11	13
NE	PVC Tiles(57)	9.81	40		16		56	48	-8	
NE	Plastic Profiles(57)	5.06	33	6	7	39	40	44	4	5
	AVERAGE (weighted)	261.41	31.10	6.07	12.60	37.84	37.20	46.18	2.71	9.01
	Average (plain)		26.40	7.00	11.75	35.67	37.00	42.00	3.75	9.00
			5	3	4	3	4	5	4	3
	Light Chemicals									
Exptr	Pesticides(63)	9.83	18	20	26	38	44	-1	-45	-39
Exptr	Na Ampicillin(Drug)(65)	4.4	37	5	12	42	49	34	-15	-8
Margin.Expt	Magnetic Oxides(68)	9.32	12	13	22	25	34	25	-9	0
	AVERAGE (weighted)	546.37	19.18	14.43	21.80	33.60	40.98	15.83	-25.15	-17.77
	Average (plain)		22.33	12.67	20.00	35.00	42.33	19.33	-23.00	-15.67
			3	3	3	3	3	3	3	3
	Other Engineering Industries:									
CouldExport	Aluminum Extrusions(75)	19.16	-3		14		11	-19	-30	
CouldExport	Aluminum Foil(75)	9.6	16	8	11	24	27	8	-19	-16
CouldExport	Bearings(77)	14.8	15	37	37	52	52	4	-48	-48
Exptr	Machine-Tools(81)	10.92	12	14	19	26	31	3	-28	-23
Exptr	Power Handtools(84)	16.06	17	18	40	35	56	3	-53	-32
CouldExport	XLPE Cables(85)	16.8	22	49	51	71	73	-4	-77	-75
NE	Jelly Filled Cables(85)	19.69	38	11	17	49	55	43	-12	-6
NE	Batteries(86)	20.21	32		28		60	26	-34	
NE	Fluoresc. Lamps(87)	19.25	11	23	31	34	42	26	-16	-8
Margin.Expt	Washing Machines(87)	44.8	31	5	7	36	38	30	-8	-6
NE	Auto Electricals(93)	7.76	53	16	17	69	70	67	-3	-2
CouldExport	Carburettors(93)	12.1	18	24	30	42	48	3	-45	-39
Exptr	Bus Bodies(93)	19.8	49	13		62		41		-21
NE	2-W Shock Absorbers(94)	5.15	25	5	8	30	33	31	-2	1
	AVERAGE (weighted)	236.1	24.63	17.64	23.00	44.21	45.33	19.19	-28.14	-22.90
	Average (plain)		24.00	18.58	23.85	44.17	45.85	18.71	-28.85	-22.92
			14	12	13	12	13	14	13	12
	OVERALL AVERAGE(weighted)	1868.44	30.95	11.49	16.55	42.45	45.54	35.77	-11.77	-7.13
	OVERALL AVERAGE(plain)		31.69	11.73	16.13	44.00	47.83	39.10	-9.00	-4.21
	Sample size		58	48	54	48	54	58	54	48

EFFECTS OF PROPOSED TARIFF CHANGES ON CEPRs, CMPRs, COMPETITIVENESS AND PROFITABILITY

ANNEX VIII

Export Status	Product	CEPR(%)	CMPR(%)			NPR Variation due to proposed tariffs on:			NPR(%)	Profitability(% of sales) at:		
			Input Impact	VA Impact	Total	Capital Goods	Intermdte Inputs	Both		Domestic Price	International Full Cost	Price Margl Cost
Non Exporter												
	Soybean Oil(36)	2	36	0	36							
	PFY(45)	17	22	8	29	-27	-37	-60	7	28	23	59
	POY(45)	31	30	8	38	-7	-20	-27	49	1	-48	-27
	NTY(45)	25	26	8	35	-11	-27	-38	27	8	-17	8
	Paper(52)	2	36	0	36							
	PVC Tiles(57)	0	23	0	23							
	Plastic Profiles(57)	6	31	1	33	-2	-2	-4	40	5	-33	-8
	Phenols(60/61)	5	34	1	35	-3	-7	-10	54	12	-36	-21
	Buta Rubber(67)	16	25	6	31	-9	-31	-40	37	5	-30	11
	EPM Rubber(67)	15	29	4	33	-10	-5	-15	53	6	-43	-3
	ABS(67)	3	28	1	29	-5	-10	-15	62	13	-42	-18
	Alpha Olephins(67)	17	24	7	31	-8	-46	-53	24	5	-18	14
	SBR(67)	16	32	3	35	-9	-21	-30	47	8	-36	-4
	Spec.Steel Castgs(73/74)	13	27	4	31							
	Forgings(73/74)	2	24	1	25							
	ColdRoll Coils(73/74)	0	33	0	33							
	Steel Tubes(73/74)	21	24	8	33							
	Iron Pipes(73/74)	21	22	10	31	-8	-9	-17	8	12	5	22
	Coated SteelSheets(73/74)	13	36	1	37	-3	-24	-26	42	2	-40	-26
	Jelly Filled Cables(85)	12	25	4	30	-6	-16	-22	21	14	-4	14
	Batteries(86)	25	23	10	34							
	Fluoresc. Lamps(87)	21	18	12	29	-13	0	-13	13	11	-8	31
	EPABIs(88)	2	23	1	24	-1	0	-1	19	16	-9	13
	TV Loudspeakers(90)	3	31	1	31	-2	0	-2	28	13	-40	-16
	Audio Systems(90)	7	31	2	32	-3	-14	-17	37	10	-24	-8
	Single-sided PCBS(90)	4	31	1	32	-4	-6	-10	61	16	-35	-13
	Step Motors(90)	8	25	3	28	-5	-22	-26	30	10	-18	11
	B&W and Color TVs(90)	3	36	0	37	-1	-25	-26	42	5	-35	-27
	Electronic Tuners(90)	1	34	0	34	-3	-23	-26	68	13	-46	-14
	Auto Electricals(93)	17	24	7	31	-6	-32	-38	29	4	-24	-2
	2-W Shock Absorbers(94)	3	26	1	27	-2	0	-2	28	9	-17	4
	Average(weighted)	15.4	28.5	4.4	32.9	-7.4	-19.6	-26.4	25.2			
	Average(plain)	10.7	28.0	3.6	31.7	-6.4	-16.4	-22.5	35.9	9.8	-25.0	0.4
	Variance	75.1	24.4	12.9	13.8	30.2	166.2	237.8	279.3	32.8	303.6	467.9
		31	31	31	31	23	23	23	23	23	23	23
Potential Export												
	Glucose(38)	7	19	4	22	-2	0	-2	-12	10	8	29
	Glucose(38)	3	19	2	21							
	Nitric Acid(60/61)	14	12	10	22	-7	-23	-31	-17	9	25	58
	Aluminum Extrusions(75)	1	29	0	29							
	Aluminum Foil(75)	15	30	4	34	-2	0	-2	6	3	-16	-5
	Bearings(77)	17	10	13	23	-11	-6	-17	-13	14	25	67
	XLPE Cables(85)	48	14	31	45	-17	-11	-27	-30	20	45	53
	Carburettors(93)	16	14	10	24	-7	-5	-11	-8	12	19	40
	Average(weighted)	17.1	19.0	9.1	27.9	-5.5	-3.8	-8.9	-9.0			
	Average(plain)	15.1	18.4	9.3	27.5	-7.7	-7.8	-15.0	-12.3	11.3	17.7	40.3
	Variance	187.4	49.7	85.2	60.8	27.2	73.1	126.3	114.9	26.6	347.2	561.2
		8	8	8	8	6	6	6	6	6	6	6

Marginal Export											
Tyres(56)	11	32	2	35	-4	0	-4	51	4	-46	-20
Magnetic Oxides(68)	8	19	4	23	-7	0	-7	20	18	-5	33
Forgings(73/74)	7	33	1	34	-7	-21	-28	56	9	-42	-4
Washing machines(87)	7	32	2	33	-2	0	-2	29	5	-22	-13
Computer Terminals(90)	6	30	2	31	-2	-9	-11	7	11	9	29
PCs(90)	2	33	0	34	-1	0	-1	20	6	-28	-14
Average(weighted)	8.5	31.9	1.6	34.2	-3.2	-4.6	-3.9	40.2			
Average(plain)	6.8	29.8	1.8	31.7	-3.8	-5.0	-8.8	29.8	8.8	-22.7	1.8
Variance	7.1	24.5	1.5	16.6	5.8	62.0	34.5	341.1	22.5	766.5	448.5
	6	6	6	6	6	6	6	6	6	6	6
Significant Exports											
Vanillin(38)	7	29	2	31	-16	0	-16	113	31	-48	-4
Synthetic Yarn(45)	6	26	2	28	-4	-1	-5	36	16	-14	5
BOPP Film(57)	14	29	4	33	-11	0	-11	55	19	-48	-9
PA(61/67)	7	20	2	22	0	-18	-18	92	53	0	24
MA(61/67)	16	22	7	29	-13	0	-13	69	19	-48	-19
MA(61/67)	13	21	5	28	-15	-14	-28	53	18	-25	39
Pesticides(63)	6	13	4	18	-3	-5	-9	-10	17	25	50
Na Ampicillin(Drug)(65)	12	33	2	35	-6	-5	-11	51	21	-19	-15
Machine-Tools(81)	15	23	6	30	-5	0	-5	-2	6	-3	17
Power Handtools(84)	14	17	8	25	-10	0	-10	37	15	-17	15
Mainframes&Software(90)	1	16	1	17	-1	0	-1	-9	13	17	39
Floppies(100%EOU)(90)	3	0	1	1	0	0	0	0	11	11	28
Bus Bodies(93)	13	25	5	30	0	-12	-12	-42	-18	32	43
Average(weighted)	7.4	20.3	3.7	24.1	-4.3	-6.4	-10.7	33.0			
Average(plain)	9.5	21.1	3.8	25.2	-6.5	-4.2	-10.7	34.1	16.3	-10.5	15.6
Variance	25.5	66.5	5.2	75.5	31.9	37.1	51.1	1842.1	227.6	691.6	471.9
	13	13	13	13	13	13	13	13	13	13	13
Overall Average(weighted)	12.7	27.5	3.9	31.6	-5.6	-11.1	-16.4	27.7			
Overall Average(plain)	10.6	25.3	4.3	29.7	-6.3	-10.6	-16.7	28.6	11.6	-15.4	9.7

EFFECTS OF PROPOSED TARIFF CHANGES ON CEPRs, CNPRs, COMPETITIVENESS AND PROFITABILITY, BY SUBSECTOR — ANNEX II

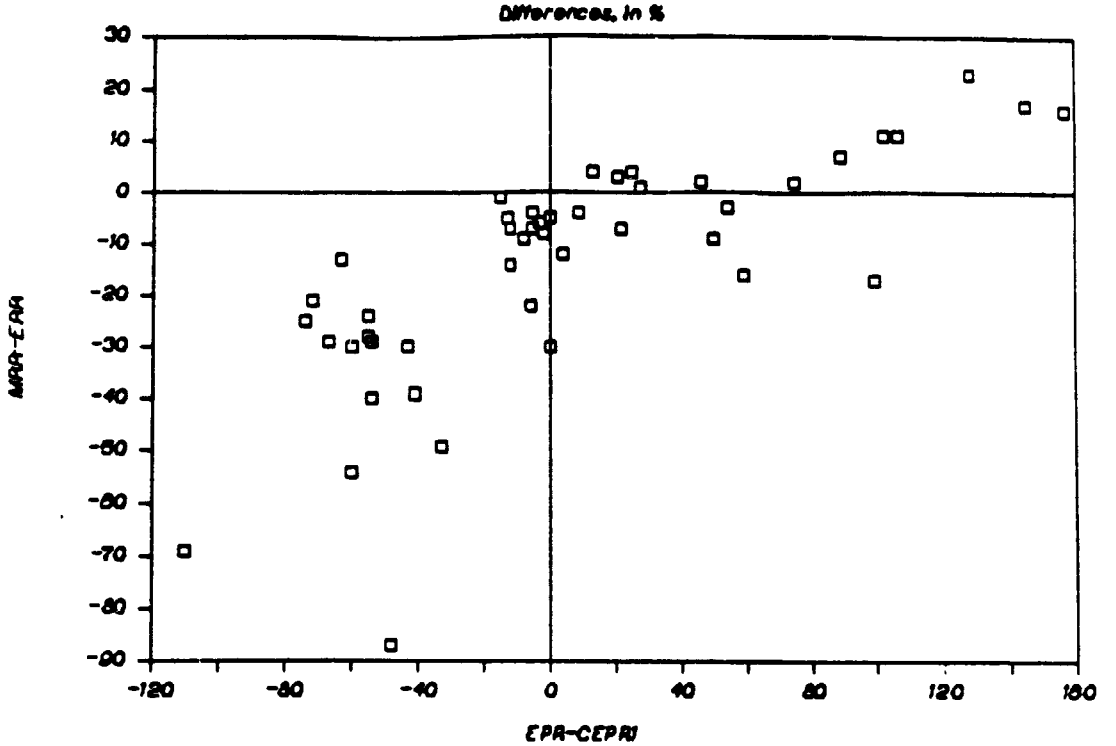
Export Status	Subsector(Product)	CEPR(%)	CNPR(%)			NPR Variation due to proposed tariffs on:			NPR(%)	Domestic NPR(%)	Profitability(% of sales) at		
			Input Impact	VA Impact	Total	Capital Goods	Intermdte Inputs	Both			Domestic Price	International FullCost	Price MargiCost
	Heavy Chemicals:												
NE	Phenols(60/61)	5	34	1	35	-3	-7	-10	54	54	12	-36	-21
NE	Buta Rubber(67)	16	25	6	31	-9	-31	-40	37	37	5	-30	11
NE	EPM Rubber(67)	15	29	4	33	-10	-5	-15	53	53	6	-43	-3
NE	ABS(67)	3	28	1	29	-5	-10	-15	62	62	13	-42	-18
NE	Alpha Olephins(67)	17	24	7	31	-8	-46	-53	24	24	5	-18	14
NE	SBR(67)	16	32	3	35	-9	-21	-30	47	47	8	-36	-4
CouldExport	Nitric Acid(60/61)	14	12	10	22	-7	-25	-31	-17	-17	9	25	58
Exptr	PA(61/67)	3	20	2	22	0	-18	-18	92	123	53	0	24
Exptr	MA(61/67)	16	22	7	29	-13	0	-13	69	83	19	-48	-19
Exptr	MA(61/67)	13	21	6	28	-15	-14	-28	53	53	18	-25	29
	AVERAGE (weighted)	12.2	25.4	4.5	30.0	-7.3	-23.6	-30.6	50.9	57.6			
	Average (plain)	11.8	24.7	4.7	29.5	-7.9	-17.7	-25.3	47.4	51.9	14.8	-25.3	7.1
		10	10	10	10	10	10	10	10	10	10	10	10
	Synthetic Textiles:												
NE	PFY(45)	17	22	8	29	-27	-37	-60	7	7	28	23	69
NE	PBY(45)	31	30	8	38	-7	-20	-27	49	49	1	-48	-27
NE	MTY(45)	25	26	8	35	-11	-27	-38	27	27	8	-17	8
Exptr	Synthetic Yarn(45)	6	26	2	28	-4	-1	-5	36	36	16	-14	5
	AVERAGE (weighted)	20.0	24.8	7.5	32.2	-17.0	-28.5	-43.7	21.7	21.7			
	Average (plain)	19.8	26.0	6.5	32.5	-12.3	-21.3	-32.5	29.8	29.8	13.3	-14.0	13.8
		4	4	4	4	4	4	4	4	4	4	4	4
	Basic Steel Products:												
NE	Spec.Steel Castgs(73/74)	13	27	4	31								
NE	Forgings(73/74)	2	24	1	25								
NE	ColdRoll Coils(73/74)	0	33	0	33								
NE	Steel Tubes(73/74)	21	24	8	33								
NE	Iron Pipes(73/74)	21	22	10	31	-8	-9	-17	8	8	12	5	22
NE	Coated SteelSheets(73/74)	13	36	1	37	-3	-24	-26	42	42	2	-40	-26
Margin.Expt	Forgings(73/74)	7	33	1	34	-7	-21	-28	56	56	9	-42	-4
	AVERAGE (weighted)	12.2	31.7	2.4	34.1	-4.2	-21.4	-24.8	38.1	38.1			
	Average (plain)	11.0	28.4	3.6	32.0	-6.0	-18.0	-23.7	35.3	35.3	7.7	-25.7	-2.7
		7	7	7	7	3	3	3	3	3	3	3	3
	Electronics:												
NE	TV Loudspeakers(90)	3	31	1	31	-2	0	-2	28		13	-40	-16
NE	Audio Systems(90)	7	31	2	32	-3	-14	-17	37		10	-24	-8
NE	Single-sided PCBS(90)	4	31	1	32	-4	-6	-10	61		16	-35	-13
NE	Step Motors(90)	8	25	3	28	-5	-22	-26	30		10	-18	11
NE	B&W and Color TVs(90)	3	36	0	37	-1	-25	-26	42		5	-35	-27
NE	Electronic Tuners(90)	1	34	0	34	-3	-23	-26	68		13	-46	-14
NE	EPABIs(88)	2	23	1	24	-1	0	-1	19		16	-9	13
Margin.Expt	Computer Terminals(90)	6	30	2	31	-2	-9	-11	3		11	8	29
Margin.Expt	PCs(90)	2	33	0	34	-1	0	-1	20		6	-28	-14
Exptr	MainframesSoftware(90)	1	16	1	17	-1	0	-1	-9		13	17	39
Exptr	Floppies(100%EQU)(90)	3	0	1	1	0	0	0	0		11	11	28
	AVERAGE (weighted)	2.1	28.2	0.4	29.2	-1.2	-8.6	-9.7	21.5				
	Average (plain)	3.6	26.4	1.1	27.4	-2.1	-9.0	-11.0	27.2		11.3	-18.1	2.5
		11	11	11	11	11	11	11	11		11	11	11

	Food Industries:											
NE	Soybean Oil(36)	2	36	0	36							
CouldExport	Glucose(38)	3	19	2	21							
CouldExport	Glucose(38)	7	19	4	22	-2	0	-2	-12	10	8	29
Exptr	Vanillin(38)	7	29	2	31	-16	0	-16	113	31	-48	-4
	AVERAGE (weighted)	4.6	28.0	1.5	29.2	-4.0	0.0	-4.0	6.0			
	Average (plain)	4.8	25.8	2.0	27.5	-9.0	0.0	-9.0	50.5	20.5	-20.0	12.5
		4	4	4	4	2	2	2	2	2	2	2
	Miscellaneous Industries:											
NE	Paper(52)	2	36	0	36							
Margin.Expt	Tyres(55)	11	32	2	35	-4	0	-4	51	4	-46	-20
Exptr	BOPP Film(57)	14	29	4	33	-11	0	-11	55	10	-48	-9
NE	PVC Tiles(57)	0	23	0	23							
NE	Plastic Profiles(57)	6	31	1	33	-2	-2	-4	40	5	-33	-8
	AVERAGE (weighted)	9.6	31.7	1.9	34.5	-4.1	0.0	-4.2	50.9			
	Average (plain)	6.6	30.2	1.4	32.0	-5.7	-0.7	-6.3	48.7	6.3	-42.3	-12.3
		5	5	5	5	3	3	3	3	3	3	3
	Light Chemicals											
Exptr	Pesticides(63)	6	13	4	18	-3	-5	-9	-10	17	25	50
Exptr	Na Ampicillin(Drug)(65)	12	33	2	35	-6	-5	-11	51	21	-18	-15
Margin.Expt	Magnetic Oxides(68)	8	19	4	23	-7	0	-7	20	18	-5	33
	AVERAGE (weighted)	7.2	19.1	3.6	23.2	-5.1	-3.0	-8.6	13.3			
	Average (plain)	8.7	21.7	3.3	25.3	-5.3	-3.3	-9.0	20.3	18.7	0.7	22.7
		3	3	3	3	3	3	3	3	3	3	3
	Other Engineering Industries:											
CouldExport	Aluminum Extrusions(75)	1	29	0	29							
CouldExport	Aluminum Foil(75)	15	30	4	34	-2	0	-2	6	3	-16	-5
CouldExport	Bearings(77)	17	10	13	23	-11	-6	-17	-13	14	25	67
Exptr	Machine-Tools(81)	15	23	6	30	-5	0	-5	-2	6	-3	17
Exptr	Power Handtools(84)	14	17	8	25	-10	0	-10	37	15	-17	15
CouldExport	XLPE Cables(85)	48	14	31	45	-17	-11	-27	-30	20	45	53
NE	Jelly Filled Cables(85)	12	25	4	30	-6	-16	-22	21	14	-4	14
NE	Batteries(86)	25	23	10	34							
NE	Fluoresc. Lamps(87)	21	18	12	29	-13	0	-13	13	11	-8	31
Margin.Expt	Washing Machines(87)	7	32	2	33	-2	0	-2	29	5	-23	-13
NE	Auto Electricals(93)	17	24	7	31	-6	-2	-38	29	4	-24	-2
CouldExport	Carburettors(93)	16	14	10	24	-7	-5	-11	-8	12	19	40
Exptr	Bus Bodies(93)	13	25	5	30	0	-12	-12	-42	-18	32	43
NE	2-W Shock Absorbers(94)	3	26	1	27	-2	0	-2	28	9	-17	4
	AVERAGE (weighted)	18.3	23.2	7.7	30.9	-6.5	-5.8	-12.1	6.8			
	Average (plain)	16.9	22.1	8.1	30.3	-6.8	-6.8	-13.4	5.7	7.9	0.8	22.0
		14	14	14	14	12	12	12	12	12	12	12
	Intermediates/Inputs											
	AVERAGE(weightd)	15.0	26.8	4.9	31.7	-9.6	-24.6	-33.2	38.4	41.3		
	AVERAGE(plain)	13.0	26.2	4.7	30.9	-8.6	-9.6	-26.7	41.1	43.8	13.2	-22.7	6.9
	Final Goods											
	AVERAGE(weightd)	11.0	24.3	3.4	28.1	-4.5	-3.6	-8.3	20.4			
	AVERAGE(plain)	9.2	24.8	4.1	28.9	-5.0	-6.2	-11.2	21.8		10.8	-11.5	11.2
	OVERALL AVERAGE(weightd)	12.7	25.0	3.8	29.1	-5.9	-9.6	-15.4	25.5			
	OVERALL AVERAGE(plain)	10.6	25.3	4.3	29.7	-6.3	-10.6	-16.7	28.6		11.6	-15.4	9.7

GRAPHS 1 and 2

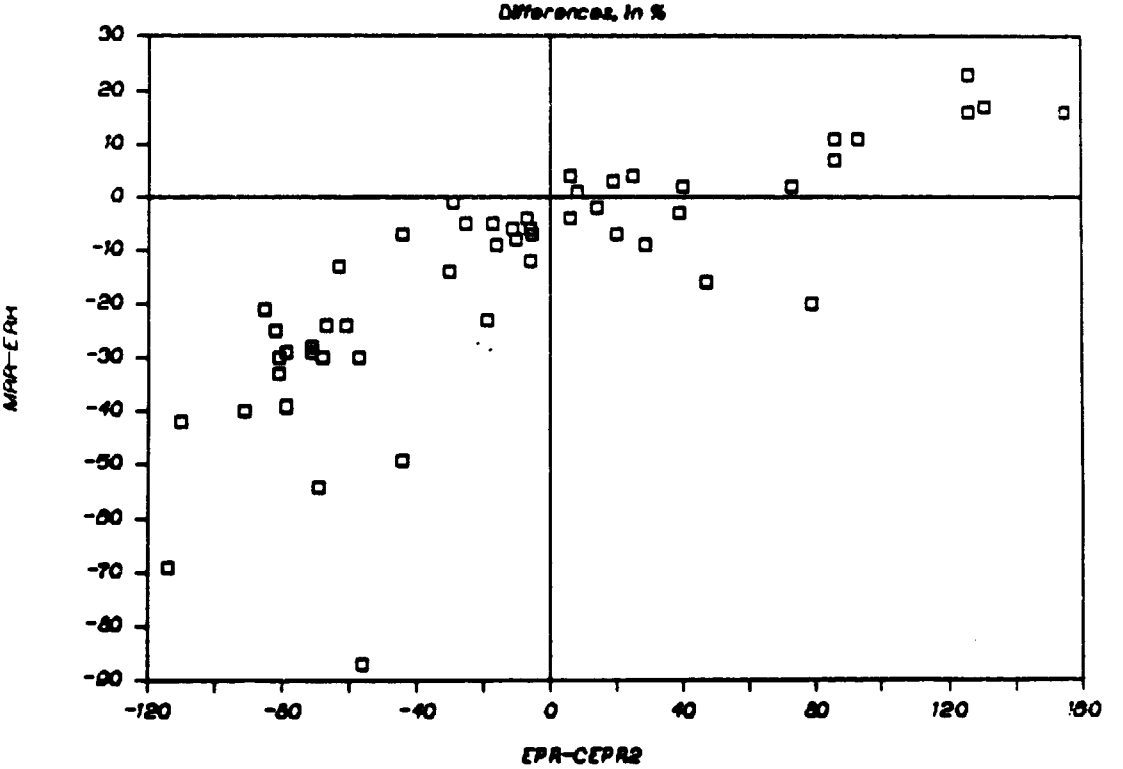
RELATIONSHIP BETWEEN EPRs AND IRRs

Differences, in %



RELATIONSHIP BETWEEN EPRs AND IRRs

Differences, in %



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